Parts and Wholes

Chapter 3

Our Flag

You must have seen the flag of our country. Do you know how to draw the flag?

Draw a rectangle of length 8 cm and width 6 cm.

Divide it into three equal parts and complete the flag

The top one-third of our flag is saffron (or orange).

What is the colour of the middle one-third of the flag?

Where will you draw the Ashoka chakra?

How much of the flag will you colour green?

Is the white colour now less than ⅓ of the flag? Why?

Now look at this flag. How much of it is black?_____

The flag of Afghanistan

The green part of the flag can be written as_____

Is red less than one-third of the flag?

Why?

This is the flag of Myanmar, our neighbours.

Is blue more than one fourth of the flag or less?

Guess how much of the flag is red. Is it more than ½ ? Is it more than three –fourths.

Magic Top

Let us make a magic top.

Take a cardboard piece.

Draw a circle of radius 3cm and cut it out.

Divide the circle into 8 equal parts. Now each part is $\frac{1}{8}$ of the circle.

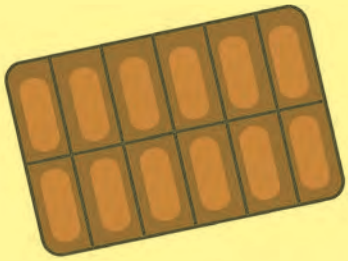
Colour $\frac{2}{8}$ red, $\frac{1}{8}$ orange, $\frac{1}{8}$ yellow etc, as shown here. Push a matchstick through the centre of the circle.

Your magic top is ready. Spin it fast!

What do you see? Can you see all the colours? Write what you see in your notebook.

Practice Time

A) Chocolate bar



Ulfat had a chocolate. She gave one- fourth of it to Nighat one-third to Sumaira and one-sixth to Ishrat. She ate the remaining part. How many pieces of chocolate did each get? Write here.

Nighat _____

Sumaira _____

Ishrat _____

Ulfat _____

What part of the chocolate did Ulfat eat?

B) Colour the hats

Colour ⅓ of the hats red.

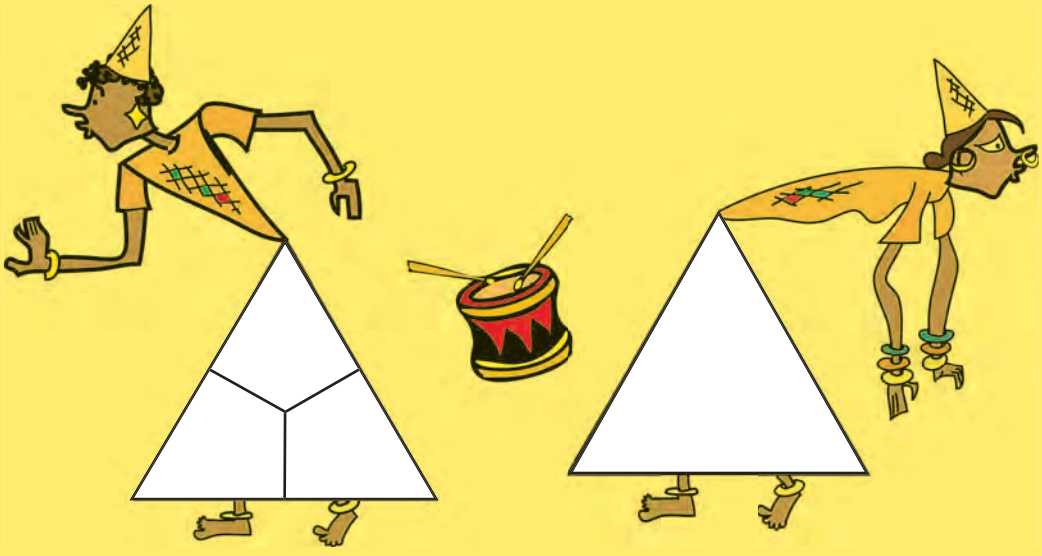
Colour three- fifth hats blue.

How many hats did you colour red?

How many hats did you colour blue?

What part of the hats are not coloured?

C) Equal Parts of a Triangle

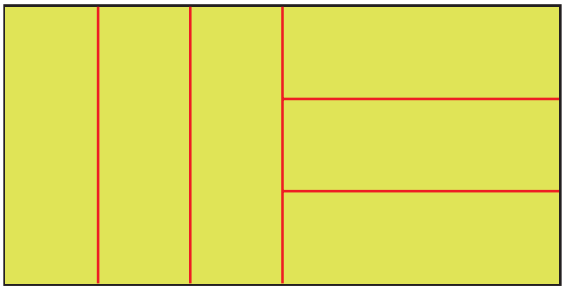


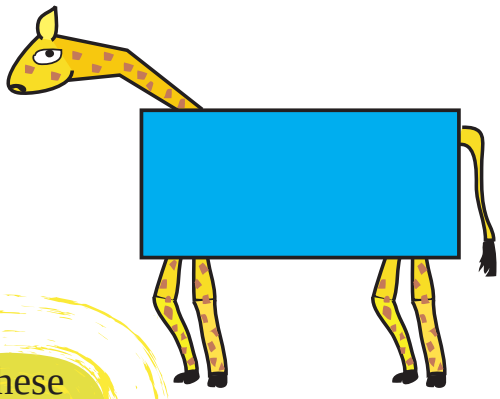
The white triangle is divided into three equal parts. Fill each one third part with a different colour. Can you show that these parts are equal? Think how.

Now try to make three equal parts of this triangle in a different way. Colour each one-third with a different colour.

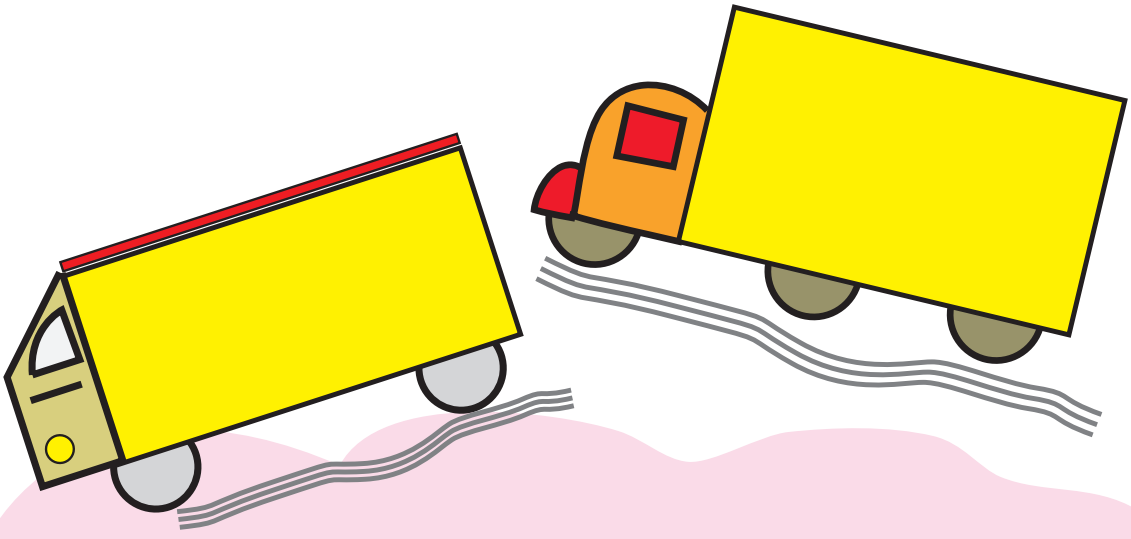
D) Six Parts of a Rectangle

Bisma has divided a green rectangle into six equal parts like this.





❖ Now you divide each of these rectangles into six equal parts. Use a different way for each of the three rectangles



Discuss

❖ How will you check that each part is really one-sixth of that rectangle?

❖ The green rectangle is bigger than the blue one. Can we say that $\frac{1}{6}$ of the green rectangle is bigger than $\frac{1}{6}$ of the blue rectangle?

Greedy Gate keepers

Remember Birbal, The clever minister of King Akbar? Do you know how he became a minister?

Birbal was then a young boy living in a village. He was very clever and could write poetry.

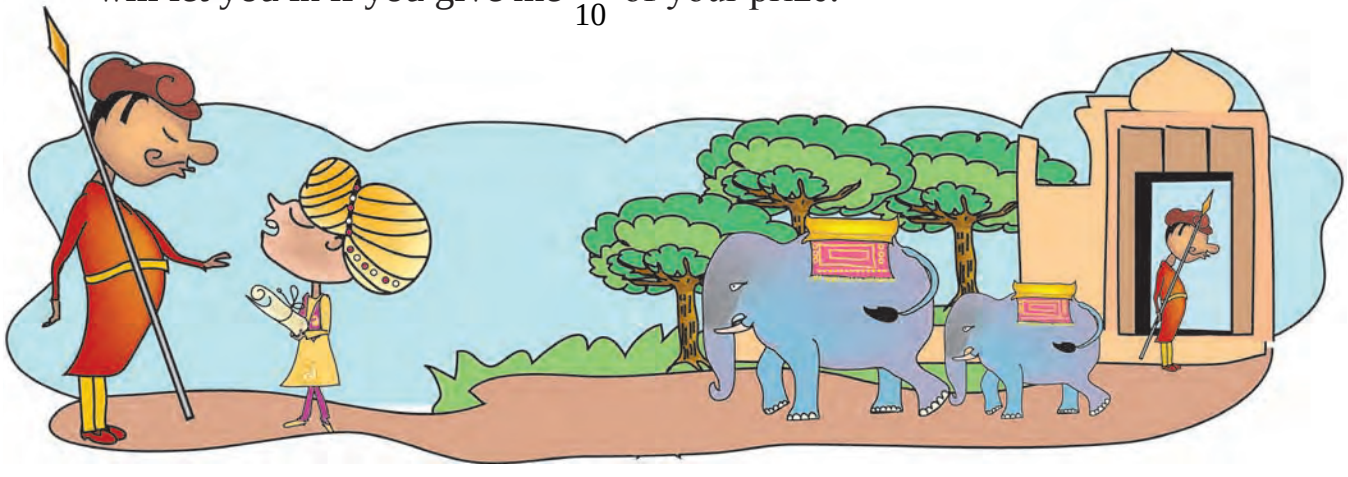
He thought he would try his luck in the king's court. So he took some of his poems and set of for the city.

When he reached the outer gate of the palace, he was stopped by the gatekeeper. "Hey! Stop there!

Where are you going?", shouted the gate keeper.

"I am a poet. I want to see King Akbar and show my poems to him", replied the poet.

"Oh, you are a poet! The king is kind, he will surely give you a prize. I will let you in if you give me $\frac{1}{10}$ of your prize."



Young Birbal agreed since he had no other way.

When he went in, the gatekeeper calculated "If he gets 100 gold coins I will get_____ gold coins".

The poet came to a second gatekeeper.

This gatekeeper also said, "I will let you in if you give me **two-fifth** of your prize". The poet agreed.

The gatekeeper happily calculated, "The poet will get at least 100 gold coins so I will get _____ gold coins!"

The poet reached the last gate. The gatekeeper said, "I will allow you to see the king only If you give me **half** of the prize that you get". The poet had no other way. He agreed and went inside.

The gatekeeper thought, "Today is a great day. If he gets 100 gold coins

I will get _____ gold coins. But if he gets 1000 coins — wow! I will get_____"

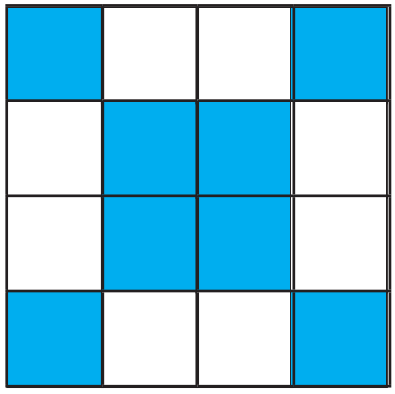
The king was very happy with the poems and said, "Your work is very good. You can ask anything as your prize".

"My Lord, I want 100 slaps". "What! 100 slaps? _____" The king was shocked —

❖ What happened after that? Complete the story. What part of the prize did the poet get?

Pattern in Parts

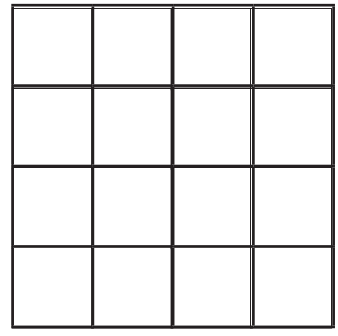
A



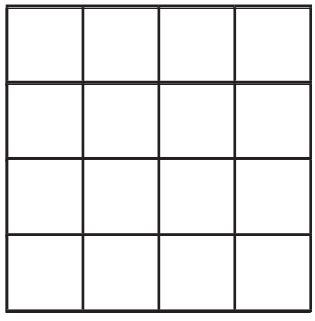
$\frac{8}{16}$ blue, $\frac{8}{16}$ white

1. Make different patterns by colouring some squares in the grids B, C, D. What part of the grid did you colour? What part of the grid remained white? Write.

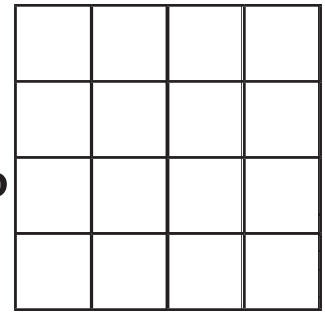
B



C



D



2. Look at Grid A again. Is the grid coloured -

a) $\frac{1}{2}$ blue, $\frac{1}{2}$ white? b) $\frac{2}{4}$ blue, $\frac{2}{4}$ white?

c) $\frac{3}{8}$ blue, $\frac{5}{8}$ white? d) $\frac{4}{8}$ blue, $\frac{4}{8}$ white?

Mark (×) on the wrong answer.

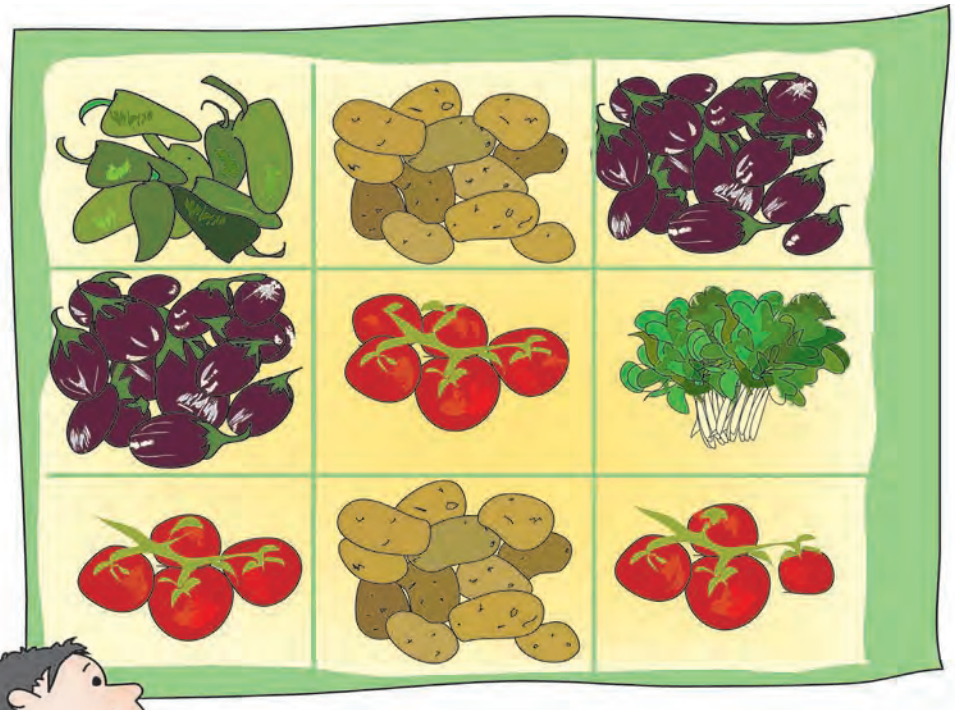
3. Draw grids of 16 squares and make patterns with

a) $\frac{2}{8}$ red, $\frac{1}{2}$ yellow, $\frac{1}{4}$ green

b) $\frac{3}{16}$ blue, $\frac{5}{16}$ red, $\frac{1}{2}$ yellow

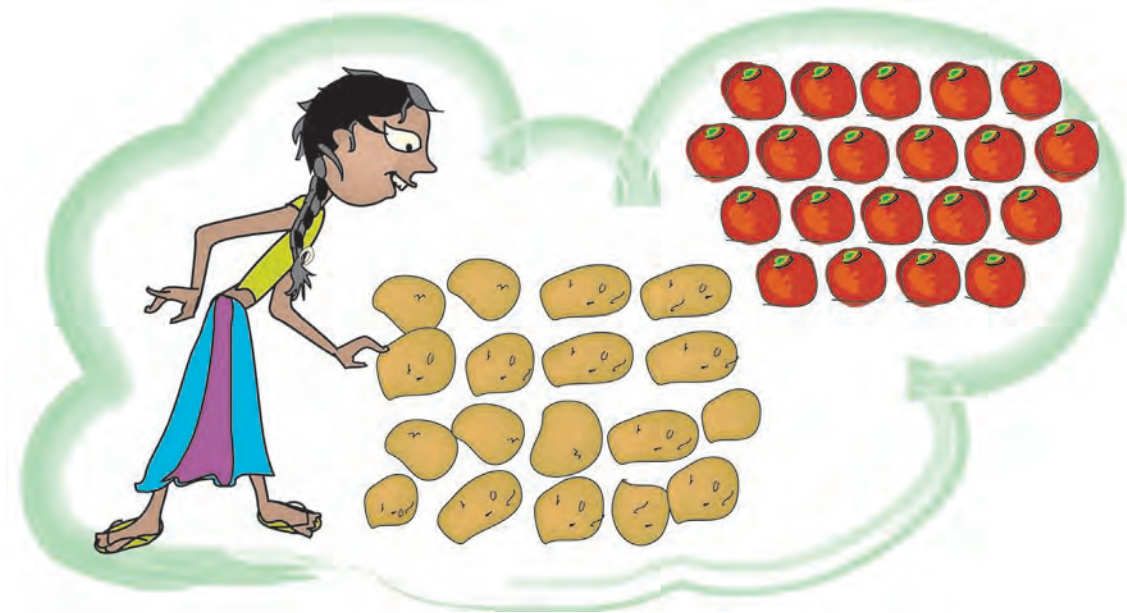
Farooq's Vegetable field.

Farooq's vegetable field has 9 equal parts. What vegetables does he grow?



1. Which vegetable grows in the biggest part of his field? What part?
2. On what part of the field does he grow potatoes?
3. What part of the field is used to grow spinach? What part is used for brinjals?
4. Now you write some questions by looking at this picture.

❖ Farooq wanted to give these vegetables to his friends. He gave Rafiq one-fifth of these tomatoes and $\frac{1}{3}$ of the tomatoes. Sumaiya got $\frac{2}{5}$ of the tomatoes and $\frac{3}{6}$ of the potatoes. Yasmeen got the rest of these vegetables. Circle Rafiq's Share in blue. Circle Sumaiya's share in yellow.



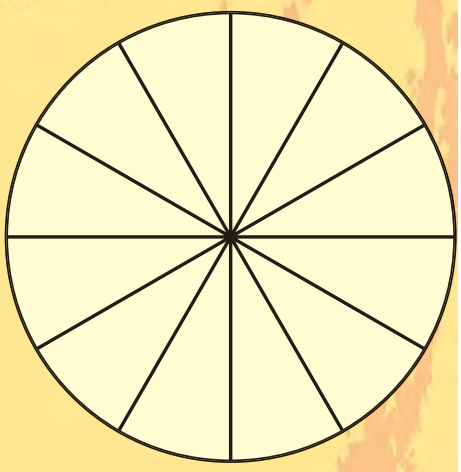
❖ How many potatoes and tomatoes did Yasmeen get?

Game: Who colours the circle first?

This game is to be played in groups of 4. Each player has to make a circle as shown. Each one of has to make 15 tokens on slips of paper. Write $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{6}, \frac{1}{12}, \frac{2}{12}, \frac{3}{12}, \frac{4}{12}, \frac{11}{12}$ to make your tokens.

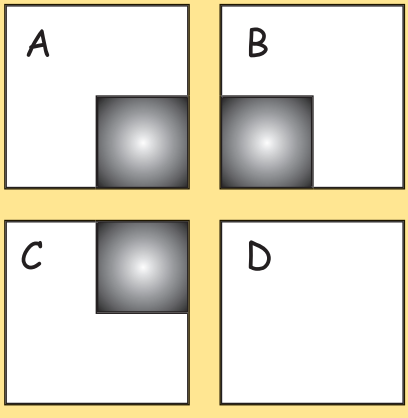
Shuffle the tokens and make a pile in the middle of the group. Now you are ready to start the game.

The first player takes a token from the pile. colours that part of the picture , and puts the token under the pile. The next player does the same and so on. The winner is the one who first colours the circle completely.



- Who won the game?
- What are the winner's tokens?
- Write the tokens you got?
- What part of the circle did you colour?

The Card Puzzle



1. Divide the white area in square A into two equal parts.
   Got the answer? Was that easy?
   Now do the second question.
2. Divide the white area in squares B into three equal parts!
   That too is easy, isn't it?
   Now see the third question.
3. Divide the white area in squares C into four equal parts!! Is it a bit difficult? Don't worry, take your time.
   Only if you give up, look for the answer.
   Here comes the last question.
4. Divide the white area in squares D in to seven equal parts!!!!

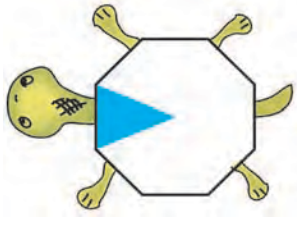
   The world record for this is 7 seconds. But you can take minutes!

   Tired of thinking? Look for the answer on page 54. So was that difficult??

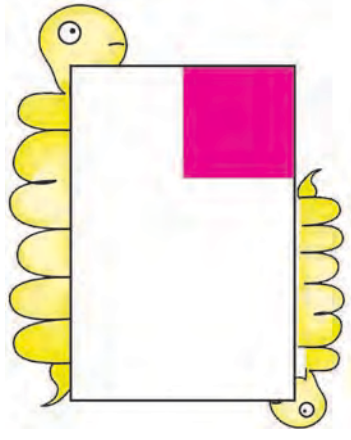
Guess and Check

a. What part of each shape is coloured?

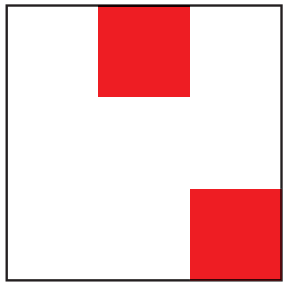
First guess the answer, then check.



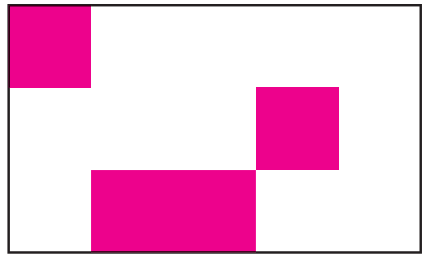
(1)



(2)



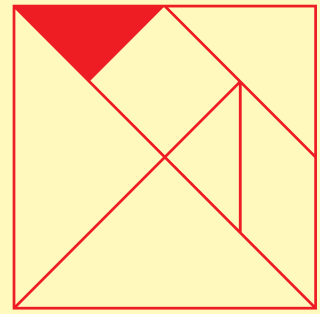
(3)



(4)

B) Do you remember this picture? Look at the small triangles. What part of the square is it? How will you find this out?

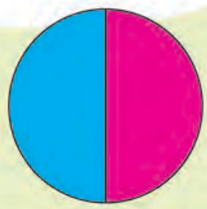
Divide the big triangles and other shapes into small triangles(like the red one). How many small triangles are there altogether?



Coloured Parts

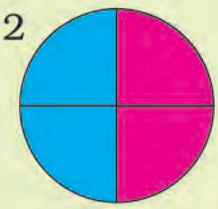
Complete these

1



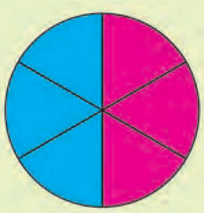
This circle is divided into two equal parts. Out of______ equal parts one part is coloured blue.

2



Here the circle is divided into______ equal parts. Out of _____ equal parts, ______ parts are coloured blue.

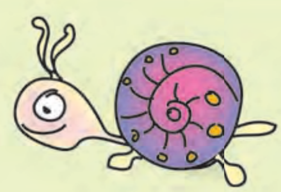
3



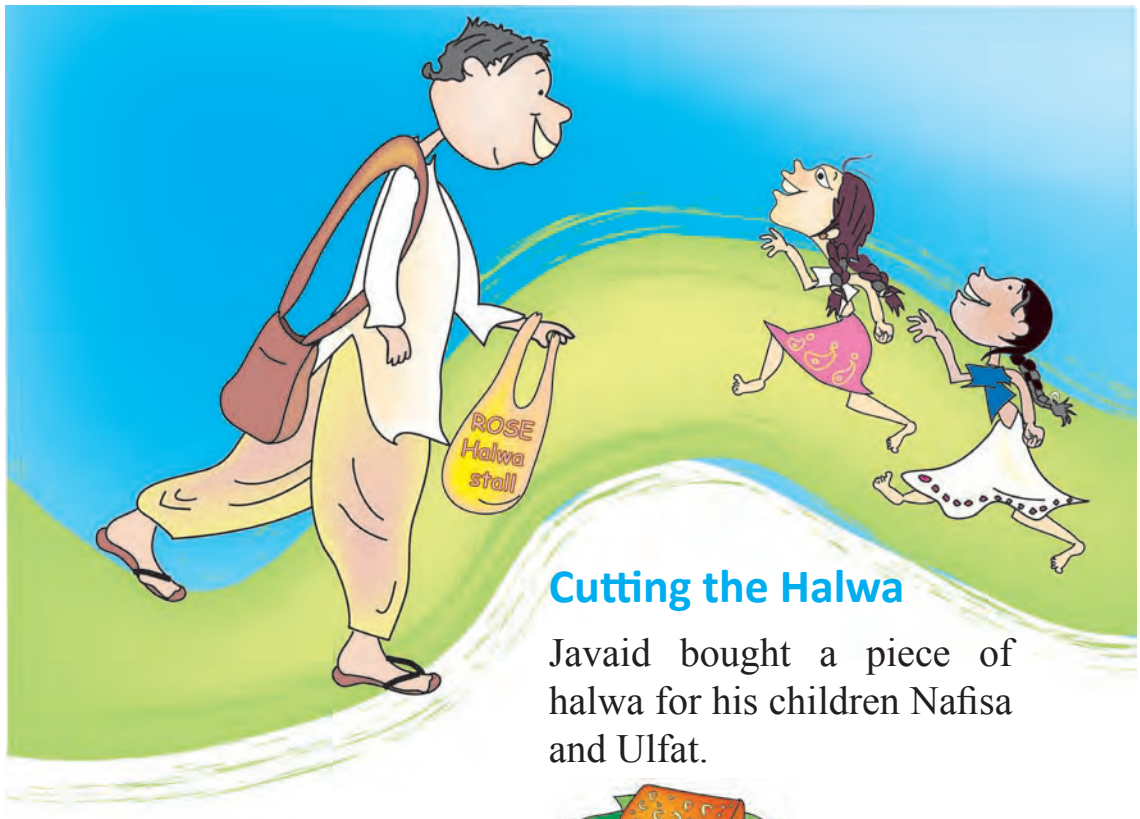
Here the circle is _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

4

Here the circle is _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _



So we can say that $\frac{1}{2} = \frac{2}{...} = \frac{...}{6} = \frac{...}{8}$



Cutting the Halwa

Javaid bought a piece of halwa for his children Nafisa and Ulfat.

He divided it equally for them

❖ Each will get _____ part of halwa

"This piece is too big. We can't eat it", they said.

So he divided the pieces into half again. Now how many pieces will Nafisa get?

_____

❖ What part of the halwa is it? _____

"Make it even smaller, Dad" they asked.

So he again cut the halwa into smaller pieces.

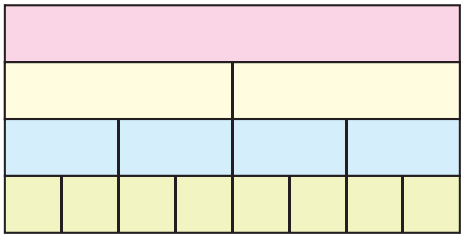
"Ok, thank you, Dad".

- ❖ Now how many pieces will each get?
- ❖ What part of the halwa is each piece now?
- ❖ If Javaid had cut the halwa into 6 equal parts how many pieces would each have got? Look at your answers for questions 1 to 4 and write —

$\frac{1}{2}$ = ___ = ___ = ___ = ___ = ___

Parts of the Strip

Look at the picture. Write what part of the strip is each green piece. Write the part for a piece of each colour.



How many one-fourths will make a half

How many $\frac{1}{8}$ will make $\frac{1}{4}$?

How many $\frac{1}{8}$ are in $\frac{1}{2}$?

Now ask your friends some questions on the same picture.

Patterns

Look at this square.

What part is coloured blue?

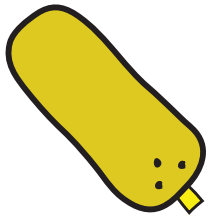
What part is green?

Puzzle: Is it Equal?

Aminah says half of half and one-third of three-quarters equal. Do you agree? How will you show this?

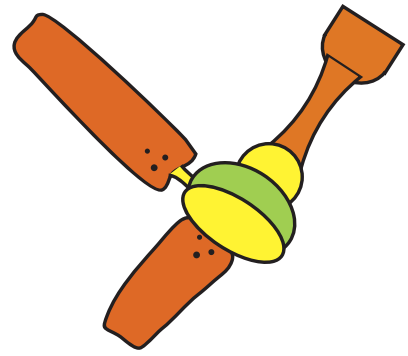
From a Part to the Whole

1) This show $\frac{1}{5}$ petals of a flower.
Complete the flower by drawing the other petals.



2) The picture shows one-third of the blades of a fan.
Complete the picture by drawing the other blades.

3) Half of the blades of another fan are shown here.
Complete the picture by drawing the other half.
How many blades have you drawn?



Rupees and Paise

How many  will make a rupee?

Is 50 paise half of one rupee?

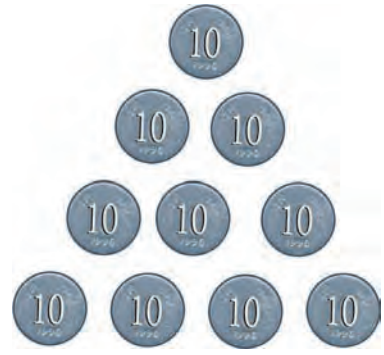
How many  will make one rupee?

25 paise is _____ part of one rupee?

20 paise is _____ part of one rupee?

How many 10 paise will make one rupee?

So 10 paise is _____ part of one rupee?



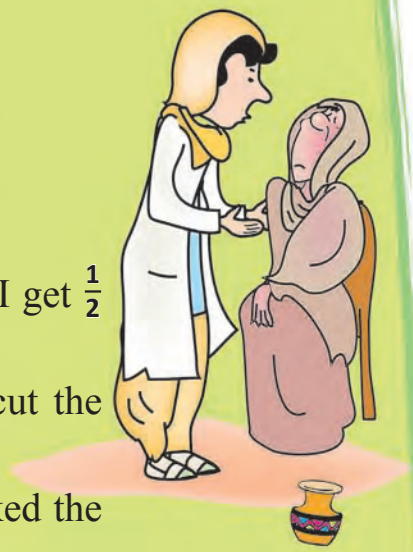
An Old Woman's Will

Once there lived an old woman. She lived with her three daughters. She was quite rich and had 19 camels. One day she fell ill. The daughters called the doctor. The doctor tried his best but could not save the woman. After her death, the daughters read what she had written in her will.

My eldest daughter will get $\frac{1}{2}$ of my camels

My second daughter will get $\frac{1}{4}$ of my camels

My third daughter will get $\frac{1}{5}$ of my camels



The daughters were really puzzled. "How can I get $\frac{1}{2}$ of the 19 camels?' asked the eldest daughter.

"Half of l9 is nine and a half. But we can't cut the camel!" The second daughter said.

"That is right. But what will we do now?" asked the third daughter".

Just then they saw their aunt coming. The daughters told her their problem.

"Show me the will. I have an Idea. You take my camel. So you have 20 camels. Now can you divide them as your mother wanted?" the aunt said.

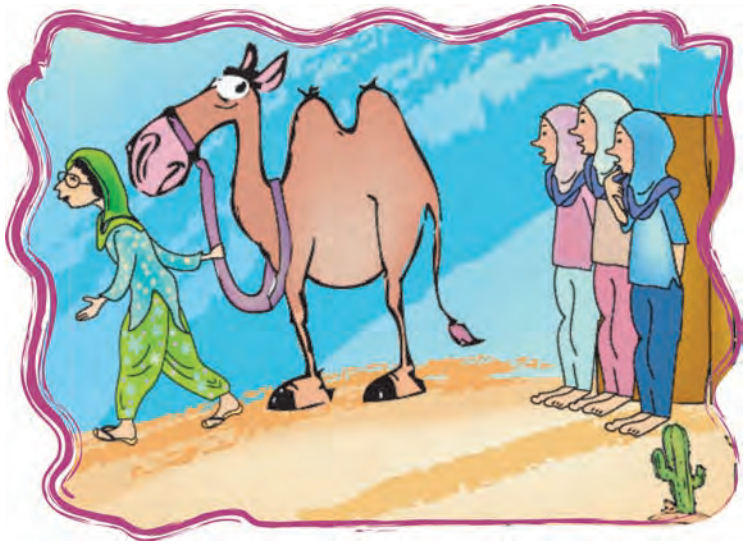
"You want half of the camels, don't you? Take 10 camels" she said to the eldest daughter.

"Take your share", the aunt told the second daughter. She took one-fourth of the camels and got_____ camels.

"You can take one-fifth of the camels", the aunt told the third daughter.

She got ____ camels. The daughters were very happy and counted her camels 10+ _____ + _____ = 19.

"The one remaining is mine", said the aunt and took her camel away!



❖ How did this happen? Discuss.

Asif's Time Table

Sleeping: One third of a day

Use different colours to show

Playing: One eighth of a day

Studying: ¼ of a day

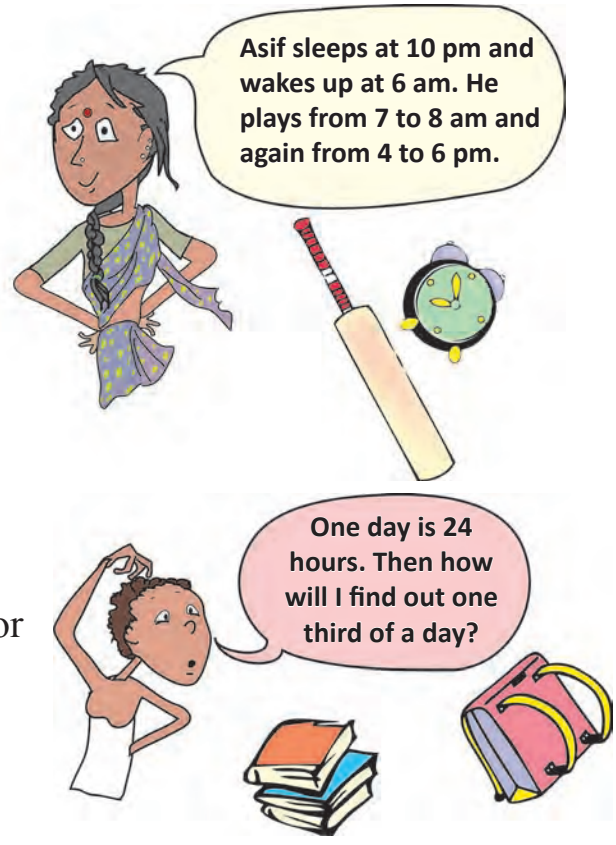
How many hours does Asif take for

Sleeping? ☐ hours

Studying? ☐ hours

Playing? ☐ hours

What part of the day does he use for other activities?



School Magazine

A school has decided to bring out a magazine every quarter of the year. How many magazines will they have in a year? If they want to print it at the end of each quarter of a year, which are the months for printing? Mark the number for those months.

1	2	3	4	5	6	7	8	9	10	11	12

Sleeping Beauty!

Have you heard of Kumbhakarana, the brother of Ravana? He is famous for sleeping for half a year.

Most people sleep about 8 hours a day.

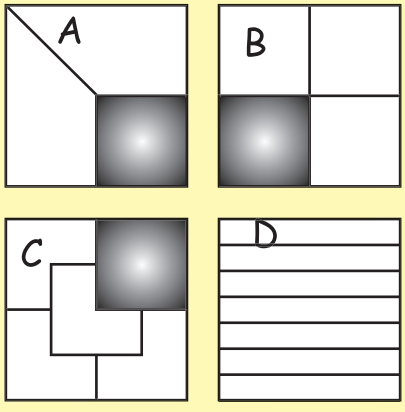
Then what part of a day is it? _____

So what part of year do they sleep? A person 60 years old must have slept _____ years!!!

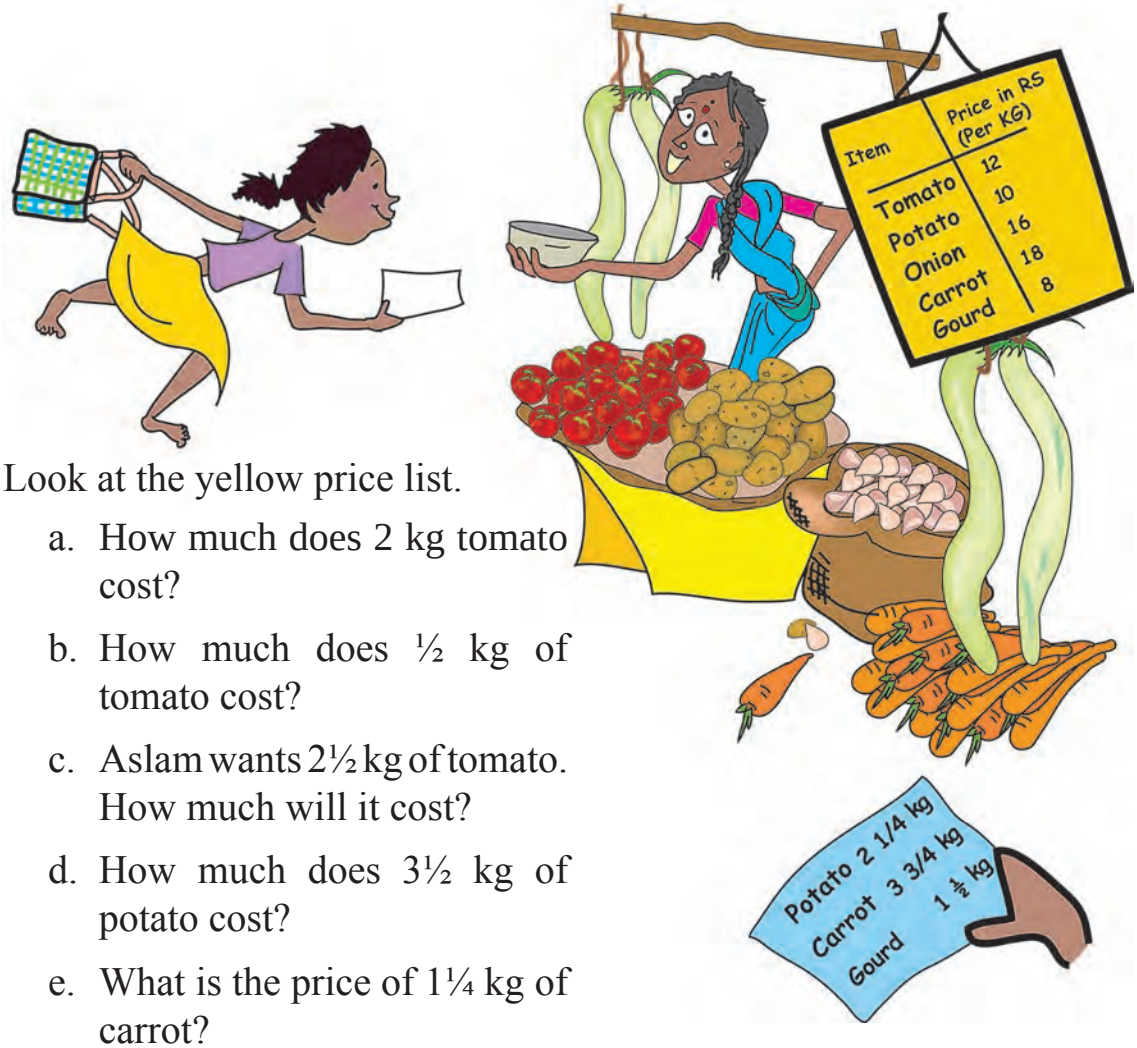
Answers: Card Puzzle (page 47)

Did you get stuck on square D?

Actually that was the easiest!!



Gazala's Shopping List



Look at the yellow price list.

a. How much does 2 kg tomato cost?

b. How much does ½ kg of tomato cost?

c. Aslam wants 2½ kg of tomato. How much will it cost?

d. How much does 3½ kg of potato cost?

e. What is the price of 1¼ kg of carrot?

f. He bought a gourd of weight 4¾ kg and its cost _____

g. Look at the shopping list in Gazala's hand. How much will she have to pay to buy all of these?

h. Make a bill of your own for vegetables you want to buy. Find the total money you will have to pay.

Item	Price in (per kg)	Amount
Total		

Let's Try These Now

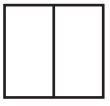
Q.NO. 1 Compare the following by using < or > or =

(a) $\frac{7}{12} \square \frac{9}{12}$ (b) $\frac{2}{8} \square \frac{1}{4}$

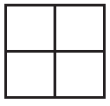
(c) $\frac{6}{8} \square \frac{3}{8}$

Q.NO. 2 Colour to show equivalent fractions:

(a)

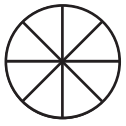


$\frac{1}{2}$

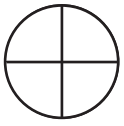


$\frac{2}{4}$

(b)



$\frac{2}{8}$



$\frac{1}{4}$

Q.NO.3 Add:

(a) $\frac{1}{8} \frac{3}{8} \frac{4}{8}$ (b) $\frac{1}{8} \frac{3}{8} \frac{1}{2}$

Q.NO. 4 Bisma got prize money of Rupees100. She gave $\frac{1}{10}$ of prize money to her sister, $\frac{4}{10}$ of her prize money to her mother and $\frac{1}{2}$ of prize money to her father. How much does she keep for herself?

Q.NO. 5 An hour has 60 minutes. How many minutes are there in $\frac{5}{6}$ of an hour?

Q.NO. 6 Find:

(a) $\frac{1}{3}$ of 27 (b) $\frac{1}{4}$ of 32 (c) $\frac{1}{4}$ of $\frac{1}{10}$

(d) $\frac{1}{12}$ of $\frac{1}{3}$ (e) $\frac{1}{6}$ of $\frac{1}{2}$ (f) $\frac{2}{5}$ of 35

Q.NO. 7 Athar had 36 apples. He gave $\frac{1}{3}$ of the apples to Sahil and $\frac{3}{6}$ of the apples to Danish. How many apples Sahil and Danish received? How many are left with Athar?

Q.NO. 8 One half of the students in classes I to VIII in a school are girls; $\frac{2}{5}$ of these are in classes I to V. What fraction of students are girls studying in classes I to V.

Q.NO.9 A man lived for 60 years. He was sleeping 12 hours a day. What part of the age did he sleep? He was also reading books, newspapers for about 2 hours a day? What part of the age, he spent in reading books and newspapers.

Q.NO. 10 A meter of cloth costs Rs. 40/-. Find the cost of $2\frac{1}{2}$ meters of cloth.

Q.NO.11 A kilogram of mangoes costs Rs.9/-. Find the cost of $3\frac{1}{2}$ kg of mangoes.

Q.NO. 12 How many $1\frac{1}{2}$ kg packets of tea can be made from a bag containing 45 kg tea?

Answers

Q.No 1. (a) < (b) = (c) >

Q.No 3. (a) 1 (b) 1

Q.No 4. Nothing Q.NO.5. 50 minutes

Q.No 6. (a) 9 (b) 8 (c) $\frac{1}{40}$ (d) $\frac{1}{36}$ (e) $\frac{1}{12}$ (f) 14

Q.No 7. Sahil = 12 apples Danish = 18 apples Athar = 6 apples

Q.No 8. $\frac{1}{5}$

Q.No 9. 30 years i.e., half of his age; 5 years

Q.No 10. Rs 100/-

Q.No 11. Rs 31.50/-

Q.No 12. 30 packets

Does It Look The Same?

Chapter 4

Let's Make Pattern from a Drop of Colour

Make Your Pattern

Take a sheet of paper

Fold it into half

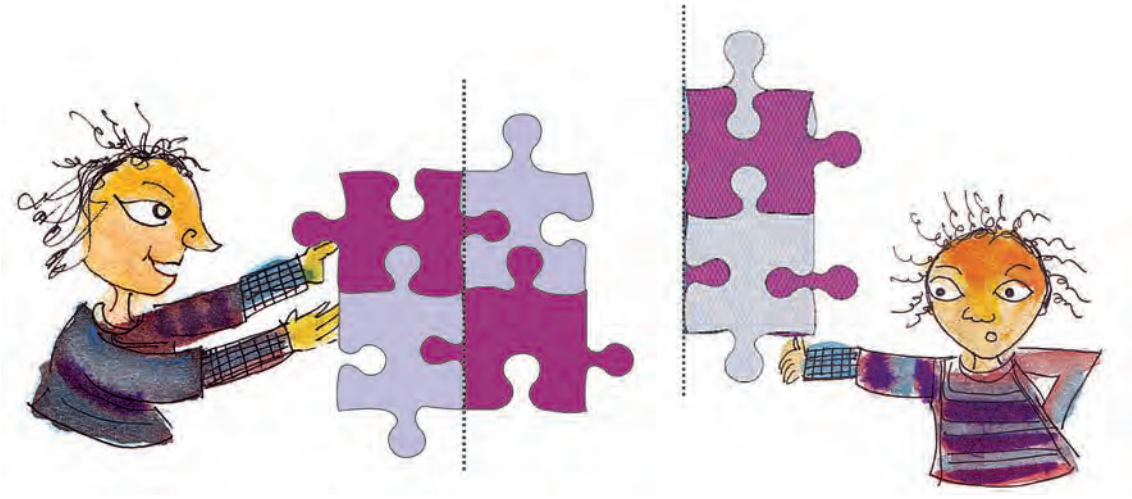
Open the fold and put a drop of colour on the middle line

Fold it twice and press It to spread the colour

Open it and see a beautiful pattern

Can you cut this pattern in such a way that you get two similar mirror halves? In how many ways can you do it?

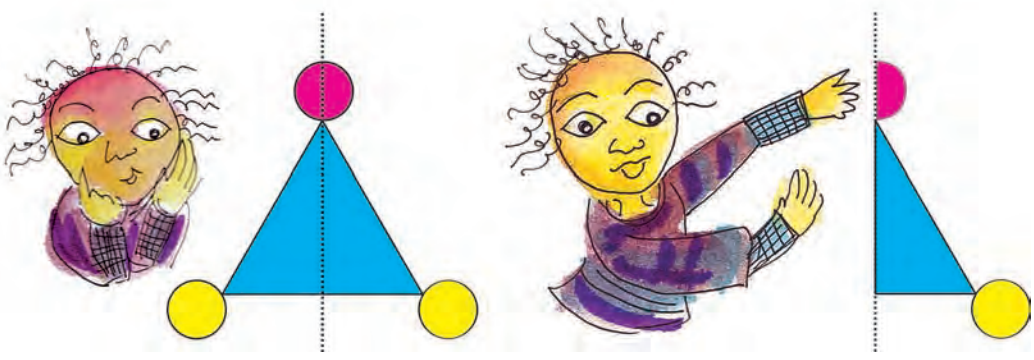
Look at This Pattern



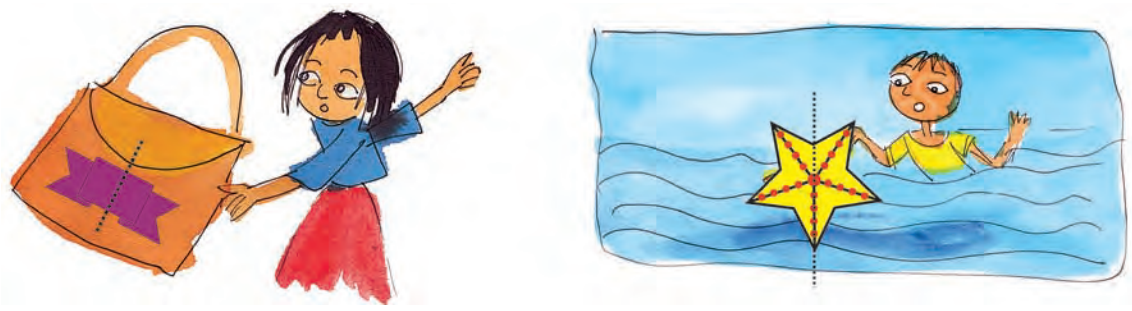
The dotted line divides the shapes into two halves. But if you fold it along the dotted line, the left half does not cover the right half completely. So the two halves are not mirror halves.

Now look at another shape.

If you fold it along the dotted line, one half will cover the other similar half completely. So the two here are mirror halves.

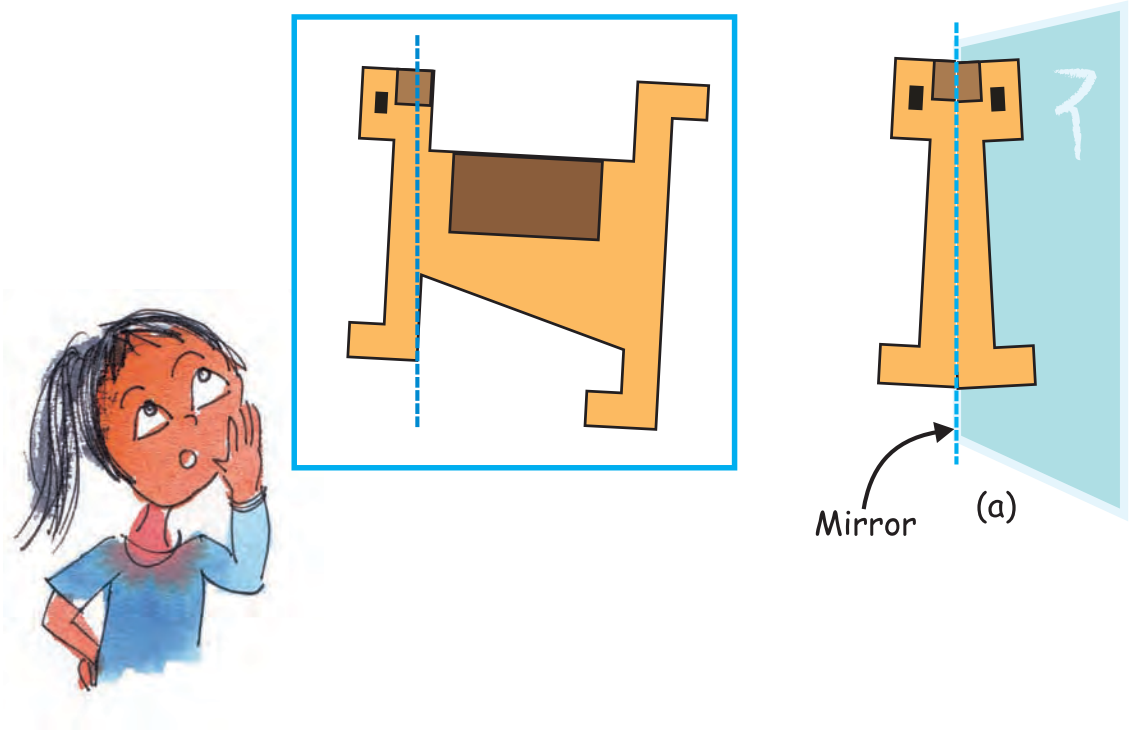


Now imagine these pictures.

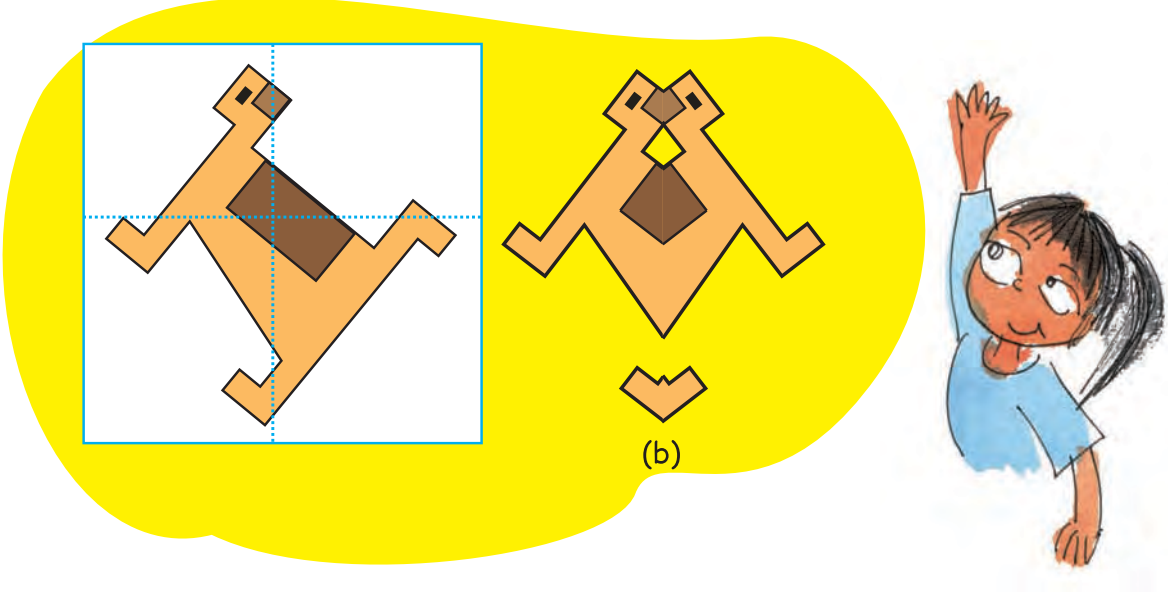


Mirror Games

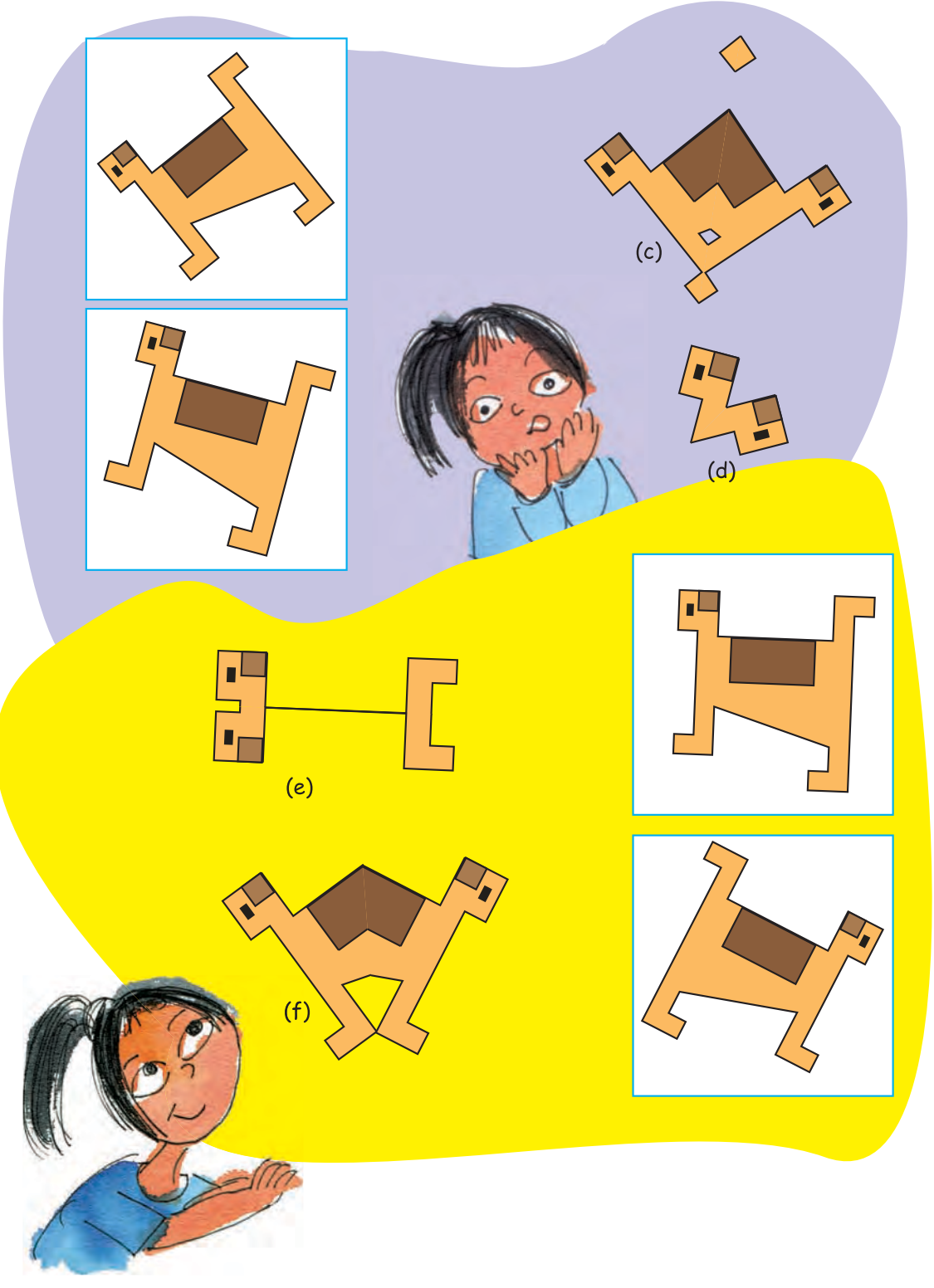
1. Here is a picture of a dog. You can place a mirror on the dotted line. Than the part of the dog to the right of the line will be hidden behind the mirror. What you will see is like (a).



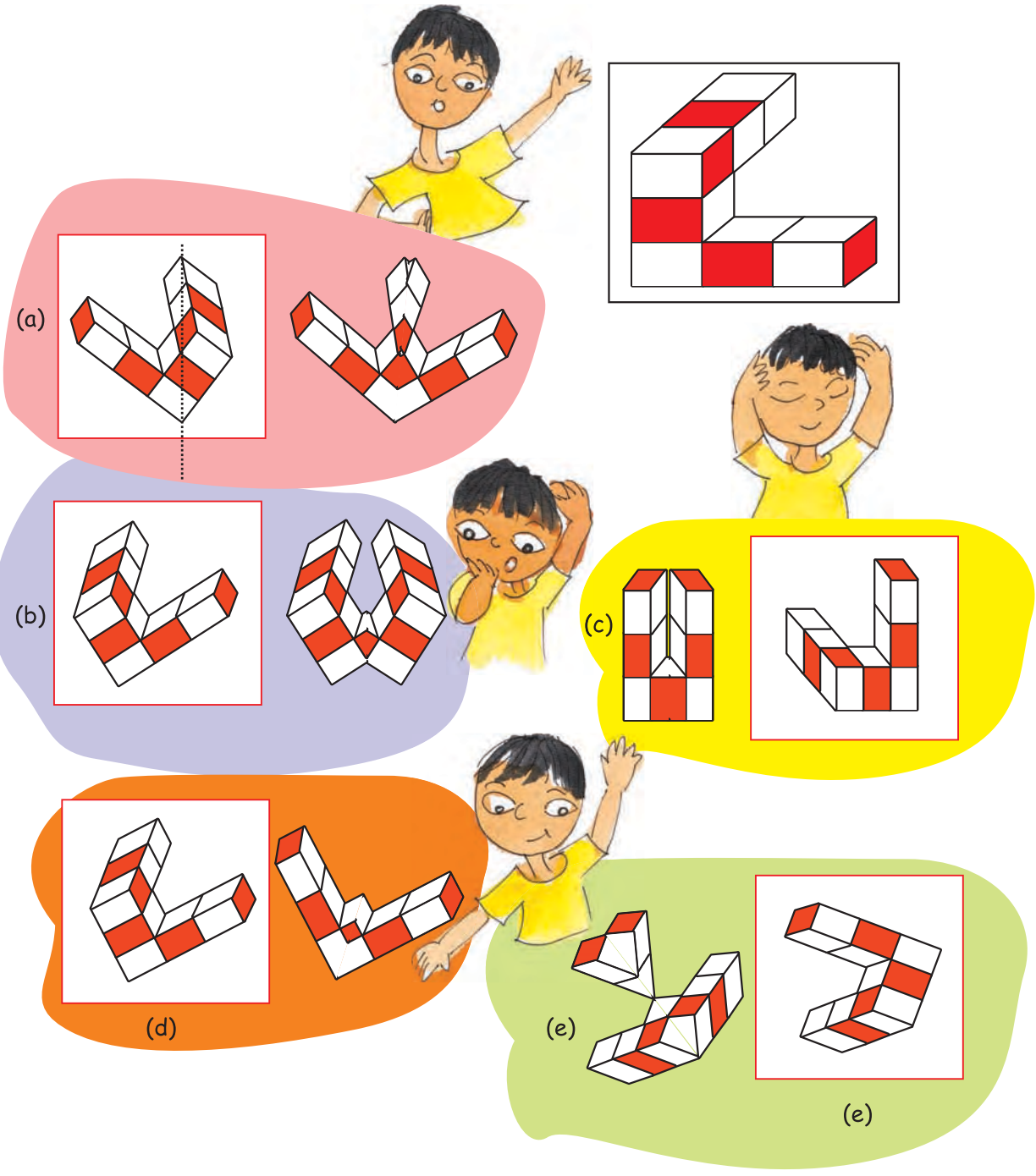
Look at the figure in the white box. On which of the dotted lines will you keep the mirror so that you get shape (b)? Also tell which part of the picture will be hidden when we keep the mirror on the dotted line.



Now make a line on the white box to show where you will keep the mirror to get the picture next to it.



2. Umar has made a red and white shape. Make a line on the white box where you will keep a mirror to get that shape. Look at how the line is drawn in the first box to get the picture next to it.



Half a Turn

Once there was a king. He was upset because thieves kept stealing costly jewels from his locker. Here is what the locker looked like:

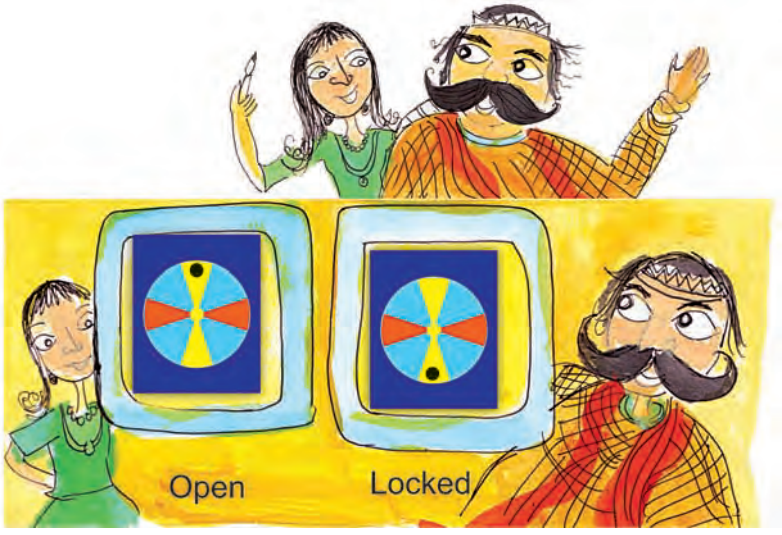
The locker could be opened by giving its handle half a turn. Another half turn and the locker would be locked again.

The king would often leave the locker open thinking it was locked. Can you guess the reason?

One day his clever daughter gave him an idea which he liked very much. Now he never got confused.

Can you guess what the idea was?

The king's daughter asked the king to put a dot on one of the yellow blades.

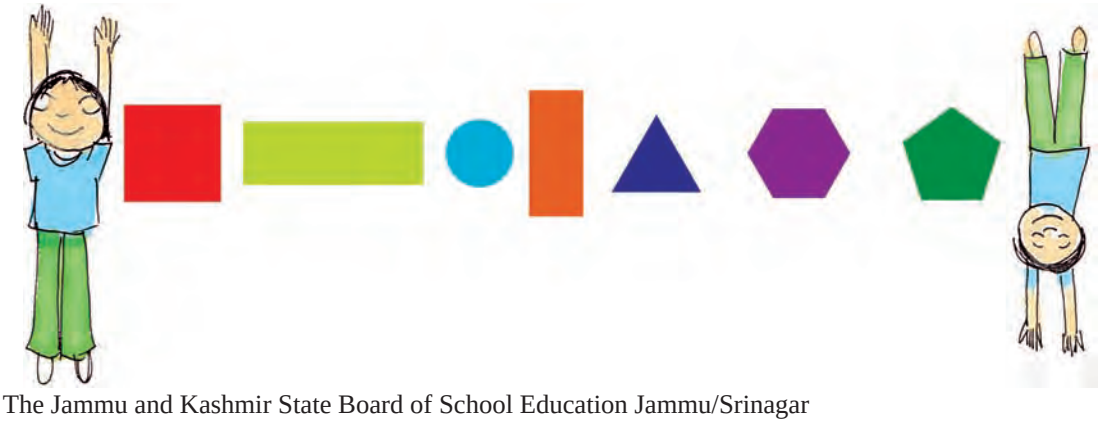


The king had many such lockers with different handles. Check if, on giving them half a turn, he can get confused with these too.

What will you do to solve the problem for each of these?

Same after $\frac{1}{2}$ turn?

Guess which of the shapes below would look the same after half a turn.



Do you find it difficult to tell? If yes, then there is a way to check your guess. Here's how you can do it.

Take any of the shapes. Trace its outline on a sheet of paper. Now keep the shape on its outline and gave it a half turn. See if the shape fits its outline.



Practice Time

1. Find out which letters in the English alphabet look the same after half a turn.
2. Which of these English words reads the same on half a turn?

ZOOM, MOW, SWIMS, SIS, NOON.

3. Give half a turn to the numbers from 0 to 9. Find which of them still looks the same.
4. Think of all 2, 3 and 4 digit numbers which looks the same on half a turn.


Example

2 digit numbers 11, _____, _____

3 digit numbers 101, 111, _____, _____, _____, _____,_____,_____

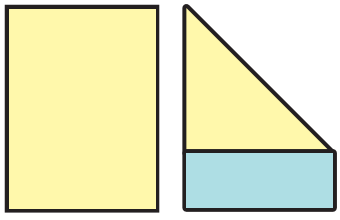
4 digit numbers 1001, 1111, _____, _____, _____ _____,_____

5. Which among the following pictures will look the same on half a turn?

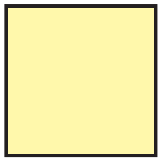
Activity Time

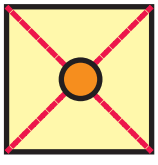
Have you ever seen a windmill? What is it used for?

Let us make a toy windmill.

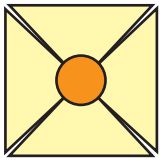


1. Take a sheet of paper.
2. Fold it as shown in picture.
3. Cut out the blue part of the paper. Your sheet of paper will now look like a square.

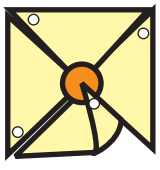


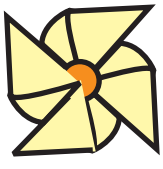


4. Fold it along the red lines and then open the fold. Draw a circle on the sheet as shown in the picture.
5. Cut along the red lines till you reach the circle. The paper will look like this.

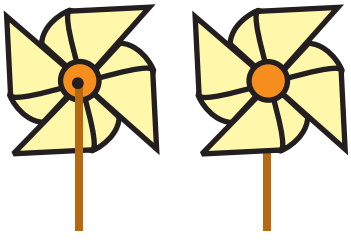


6. Take a pin and make holes on the four corners as shown in the picture.





7. Now fold the corners such that all the holes lie one on top of the other.
8. Pause the pin through the holes and fix it in the stick.

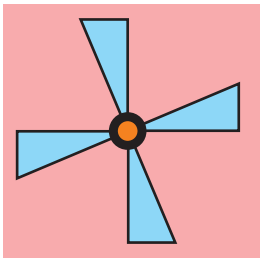


Your windmill is ready. Run with it and see how fast it moves.

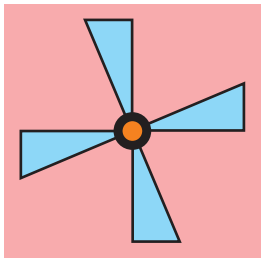
- ❖ Does your windmill look the same on ¼ of a turn?
- ❖ Does it look the same on half a turn? Discuss.

One-Fourth Turn

Does the fan look the same on ¼ turn?

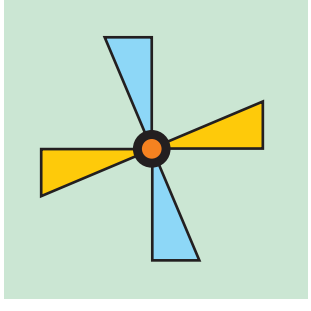


Before turning it



After $\frac{1}{4}$ turn

Will this fan also look the same after ¼ turn? Draw in the yellow box.



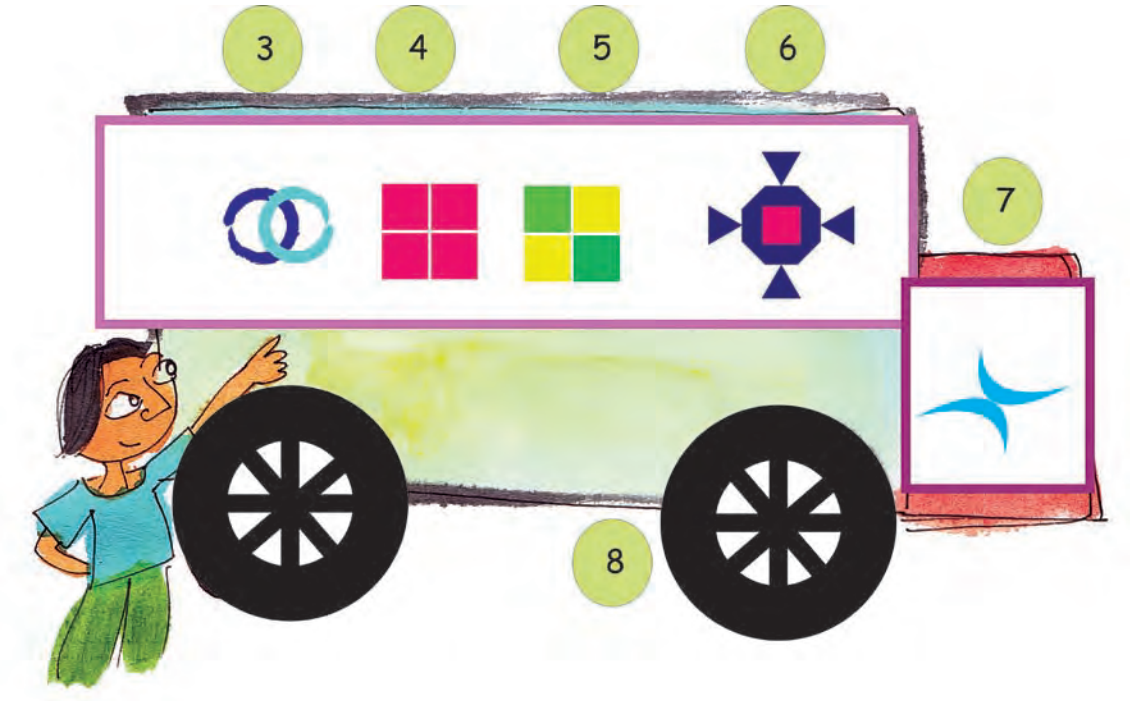
Before turning it

After $\frac{1}{4}$ turn

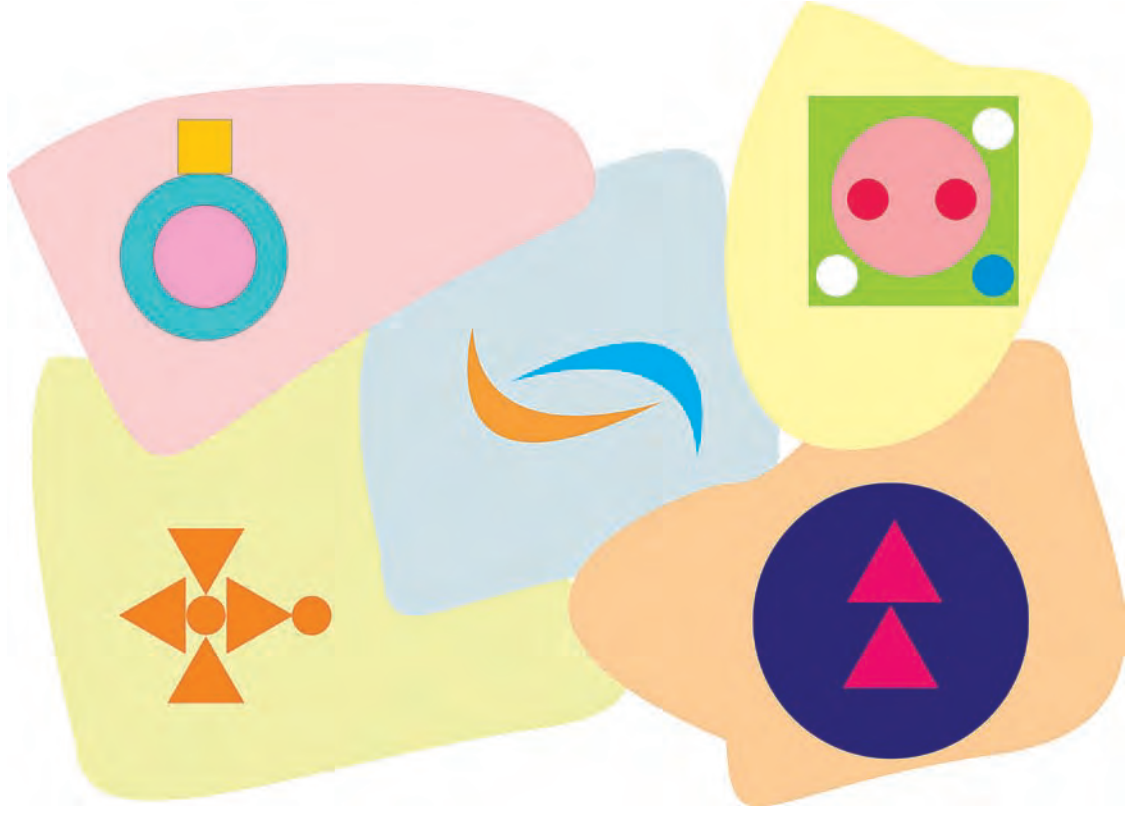
Practice Time

A) Among the following shapes, find out which ones would look the same after ¼ turn. Put (✓)

Put a (×) on the shapes that will not look the same after half a turn.



B) Try and change the shapes in such a way that the new shape remains the same on giving it half a turn.

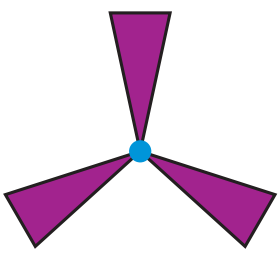


C) Draw what the following shapes would look like on ¼ turn and half a turn.

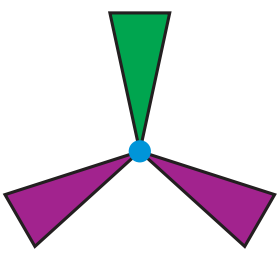
	On $\frac{1}{4}$ turn	On half turn
a) 		
b) 		
c) 		
d) 		

Which of the above shapes do not look the same on ¼ turn? Which shapes do not look the same on ½ a turn?

❖ Which fan will look the same on a ⅓ turn?

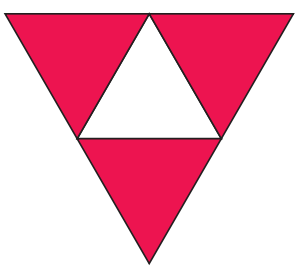


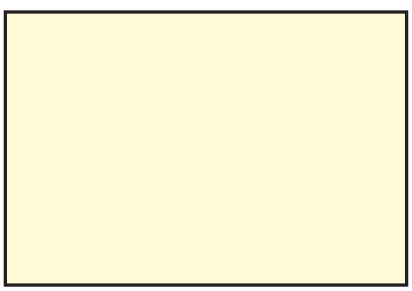
(a)



(b)

❖ Draw this shape after ⅓ turn.

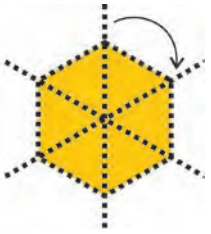




Shape after ⅓ turn

One-sixth Turn

Can you see this shape looks same on $\frac{1}{6}$ turn?



Practice Time

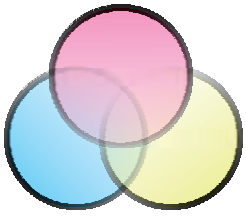
1. Look at the following shapes. Draw how they will look on $\frac{1}{3}$ and $\frac{1}{6}$ turn.

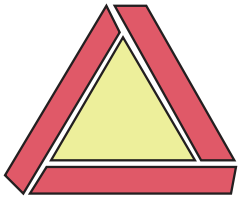
	$\frac{1}{3}$ turn	$\frac{1}{6}$ turn
		
		
		
		

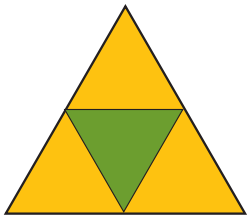
2. Look at the following shapes –

a. Find out which of these figures look the same on turn. Mark them with (✓).

b. Which are the ones that will not look the same after $\frac{1}{3}$ turn? Mark them with (×).







c. Try and change the shapes below in such a way that they look the same on $\frac{1}{3}$ turn.

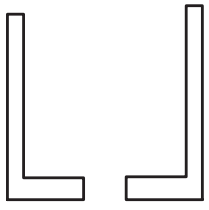
3. Draw some shapes which will look the same after $\frac{1}{3}$ turn.

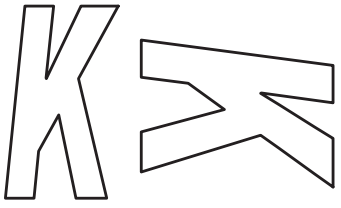
4. Draw some shapes which will look the same after $\frac{1}{6}$ turn.

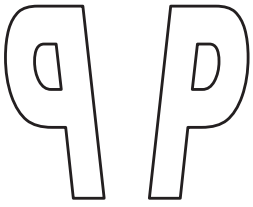
Now Let Us Do These

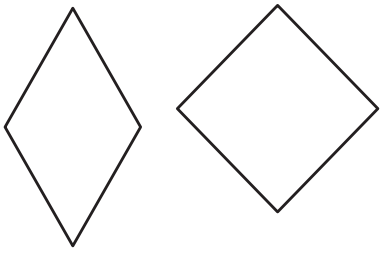
Q.NO.1 The mirror images are called reflections.

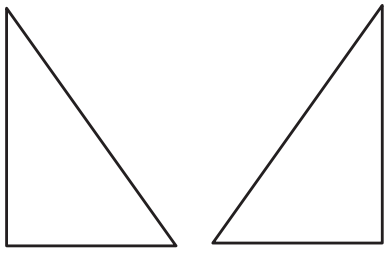
Which of the following are mirror images?

(a) 

(b) 

(c) 

(d) 

(e) 

Q.NO.2 The turning around a same point is called rotation.

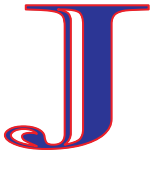
a) A_____ does not change shape on turning.

b) After half a turn the alphabet M becomes _____

c) After ¼ turn a square does not _____ in shape but looks same.

Q.No.3 Give three examples of mirror reflections in our daily life.

Q.No.4 Show by tracing the quarter turn and half turn rotation of the shapes:



ANSWERS

Q.No.1

(a), (c), (e) are mirror images.

Q.No.2

(a) Circle

(b) W

(c) Change.

Q.No.3

Wings of birds, Butterflies etc, Pair of Eyes, Ears, Arms in human beings etc.

Q.No.4

(a) (b) (c) (d)

Be My Multiple, I'll be Your Factor

Chapter 5

The Mouse and the Cat

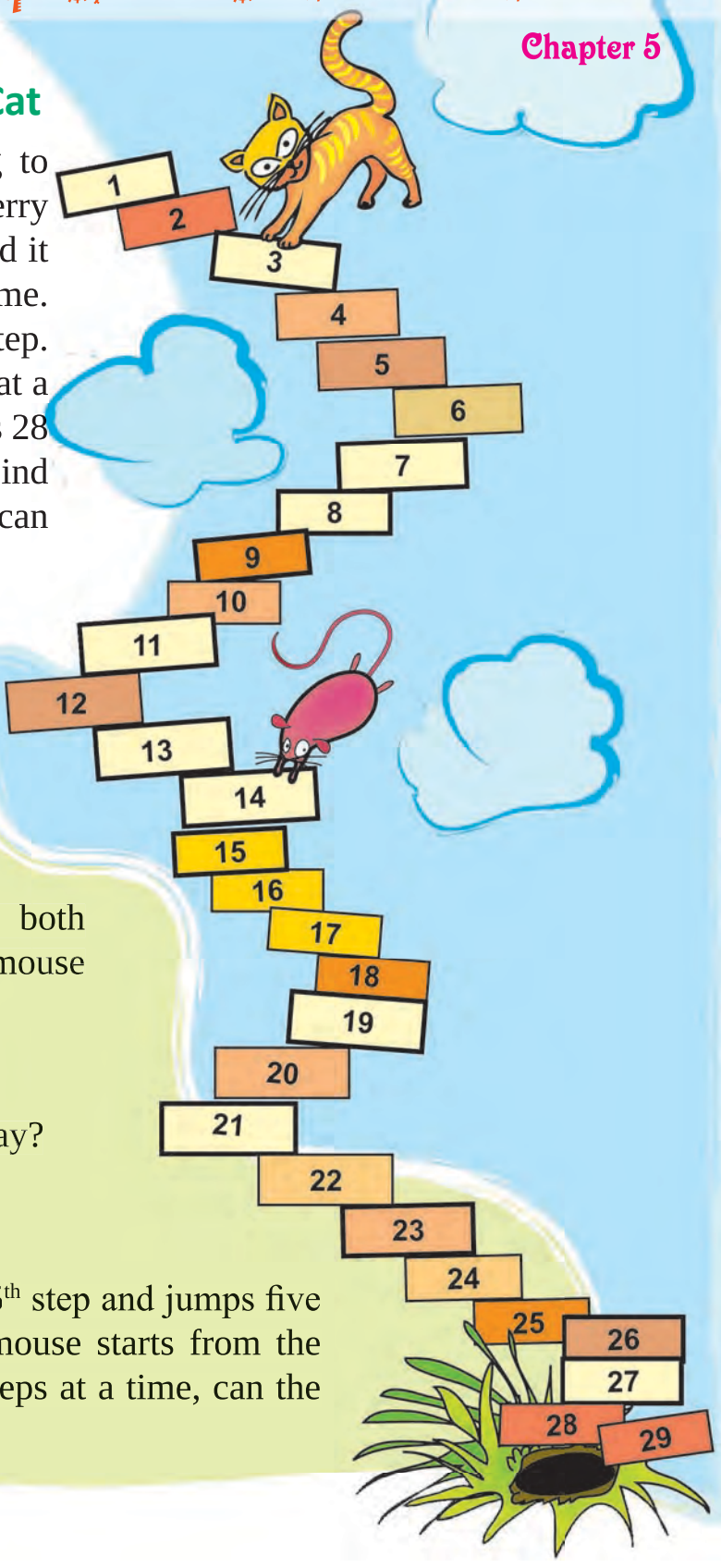
The hungry cat is trying to catch Jerry the mouse. Jerry is now on the 14th step and it can jump two steps at a time. The cat is on the third step. She can jump three steps at a time. If the mouse reaches 28 it can hide in the hole. Find out whether the mouse can get away safely!

a. The steps on which the mouse jumps-

b. The steps on which the cat jumps-

c. The steps on which both the cat and the mouse jump_____

d. Can the mouse get away?

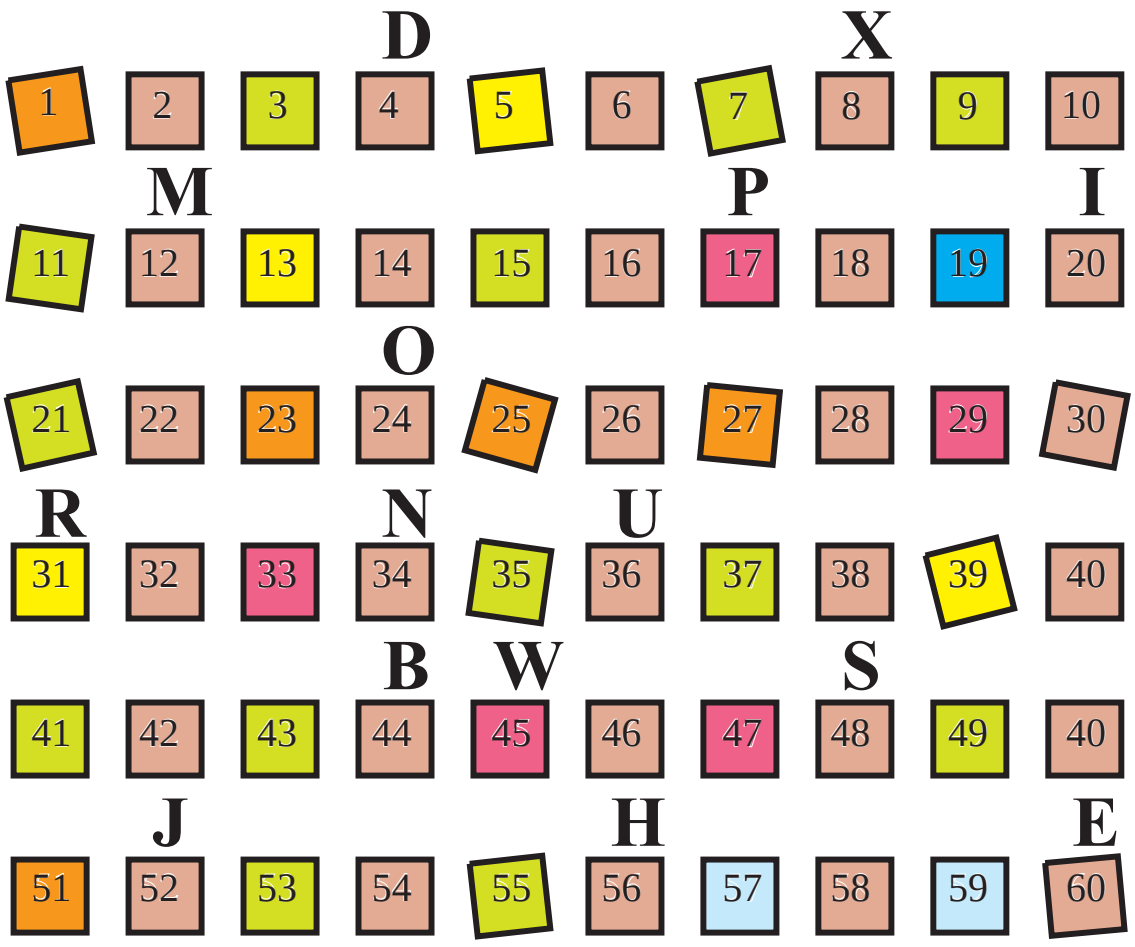


Find Out

If the cat starts from the 5th step and jumps five steps at a time and the mouse starts from the 8th step and jumps four steps at a time, can the mouse get away?

Who is Pappu waiting for?

Pappu cat is waiting for somebody. Do you know for whom he is waiting? There is a trick to find out.



Mark with a red dot all the numbers which can be divided by 2.

Mark a yellow dot on the numbers which can be divided by 3 and a blue dot on the numbers which can divided by 4.

Which are the boxes which have dots of all three colours?

What are the letters on the top of those boxes?

Write those letters below in order.

Meow Game

To play this game, everyone stands in a circle. One player calls out 'one'. The next player says 'two' and so on. A player who has a call out 3 or a number which can be divided by 3 has to say 'Meow' instead of the number. One who forgets to say 'Meow' is out of the game. The last player left is the winner.

Which numbers did you replace with 'Meow'?

3, 6, 9 .....

We say these numbers are the **multiples** of 3.

Play the game by changing the number to 4.

Now, which number did you replace with 'Meow'?

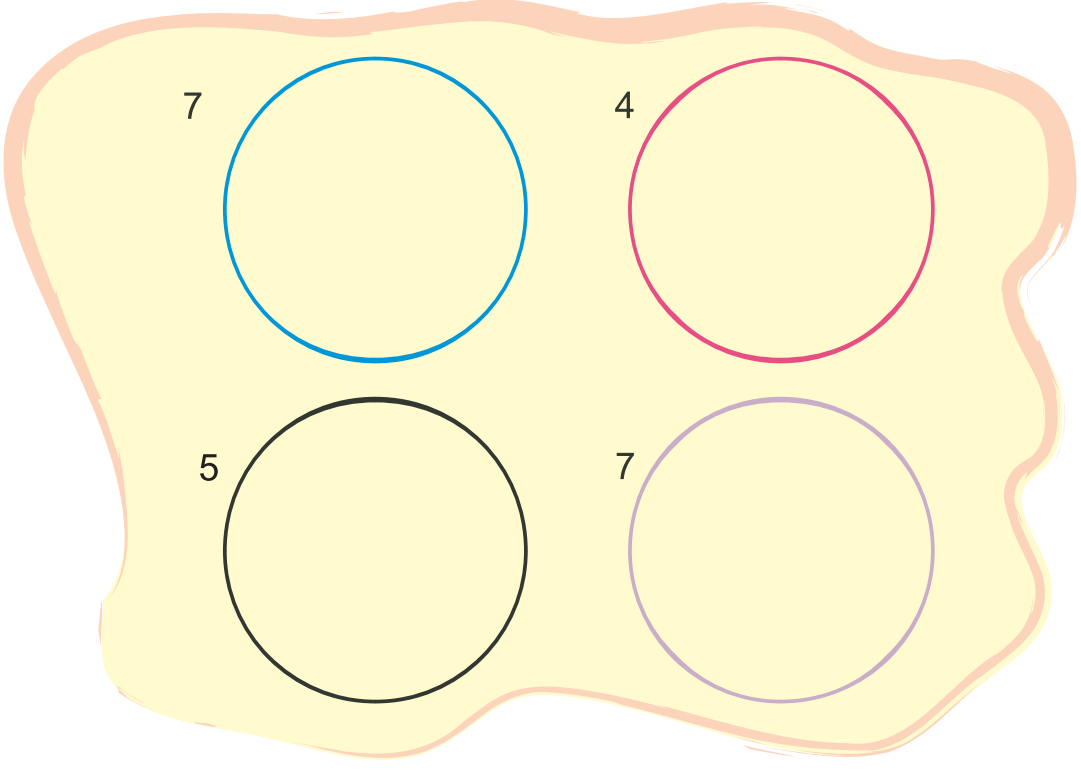
These numbers are the multiples of 4.

❖ Write any ten multiples of 5.

Dice Game

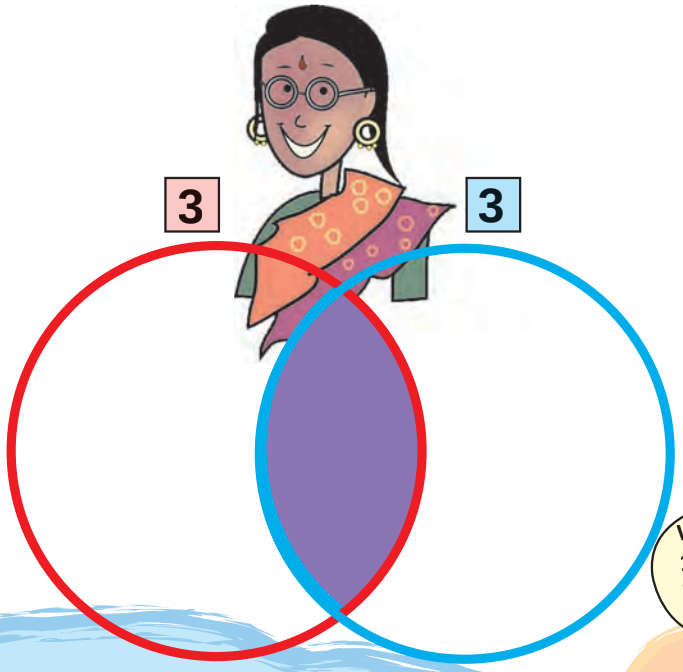
Throw two dice together. What are the numbers that turn up on the faces of the dice?

Mark a two-digit number using them .If it is a multiple of the numbers written next to the circles, you can write it in that circle. Then it is your friend's turn. The one who can write more numbers in 10 rounds is the winner.



Common Multiples

Think of a number .If it is multiple of 3 write it in the red circle. If it is a multiple of 5 write it in the blue circle.



Some numbers are multiples of both 3 and 5.

So we can say that they are **common** to both 3 and 5.

Think! If you write the multiples common to 3 and 5 in the purple part, then will they still be in both the red and the blue circles?

- ❖ Which is the smallest among these **common multiples**? _____

Repeat the game using the numbers 2 and 7

- ❖ Write the common multiples of 2 and 7.

Repeat the game by putting the multiples of 4, 6 and 5 in the circle.

- ❖ What common multiples of 5 and 6 did you write in the green part?
- ❖ What common multiples of 4 and 6 are written in the orange part?
- ❖ In which coloured part did you write the common multiples of 4, 6 and 5?
- ❖ What are the smallest common multiples of 4, 6 and 5?

Puzzle

Tamarind seeds

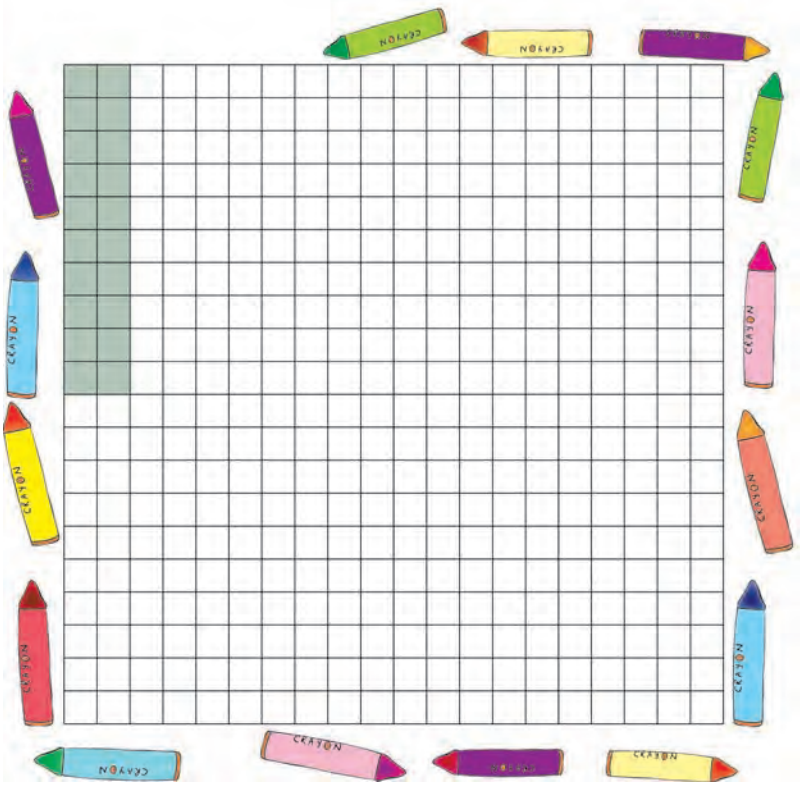
Sumiya took some tamarind (*imli*) seeds. She made groups of five with them, and found that one seed was left over. She tried making groups of six and groups of four. Each time one seed was left over. What is the smallest number of seeds that Sumiya had?

More Tamarind Seeds

Aamina is arranging 12 tamarind seeds in the form of different rectangles. Try to make more rectangles like using 12 tamarind seeds. How many different rectangles can you make?

If there are 15 tamarind seeds how many rectangles can you make?

Colouring the Grid



In the grid here, a rectangle made of 20 boxes is drawn.

The width of this rectangle is 2 boxes.

- ❖ What is its length?
- ❖ Colour a rectangle made of 20 boxes in some other way.
- ❖ What is the length and width of the rectangle of the rectangle you coloured?

❖ In how many ways can you colour a rectangle of 20 boxes?

Colour them all in the grid, and write the length and width of each rectangle you have coloured.

Bangles

There are 18 bangles on the rod. Ulfat is trying to group them. She can put them in 18 groups of 2,3,6, 9 and 18 – without any bangle being left.

❖ How many groups will she have if she makes groups of 1 bangle each?____

Now complete the table, for different number of bangles. For each number see what different groups can be made.

Number of bangles	Different groups we can make
18	1, 2, 3, 6, 9, 18
24	1, 2, ……..
5	
9	
7	
2	
10	
1	
20	
13	
21	

Fill the Chart

Complete the multiplication chart given here.

×	1	2	3	4	5	6	7	8	9	10	11	12
1												12
2						12						
3				12			21					
4			12							40		
5				20								
6		12										
7												
8									72			
9												
10												
11						66						
12	12											

Look at the green boxes in the chart. These show how we can get 12 by multiplying different numbers.

12= 4 × 3, so 12 is multiple of both 4 and 3. 12 is also a multiple of 6 and 2,as well as 12 and 1. We say 1, 2, 3, 4, 6, 12 are **factors** of 12.

12
4×3
6×2
1×12

- What are the factors of 10? _____
- Can you do this from the chart?
- What are the factors of 36? _____
- Find out the factors of 36 from the multiplication chart.

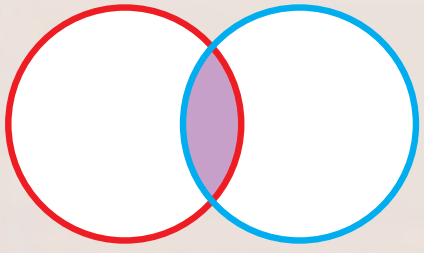
10
5×2
___

- What is the biggest number for which you can find the factors from this chart?

  What can you do for numbers bigger than that?

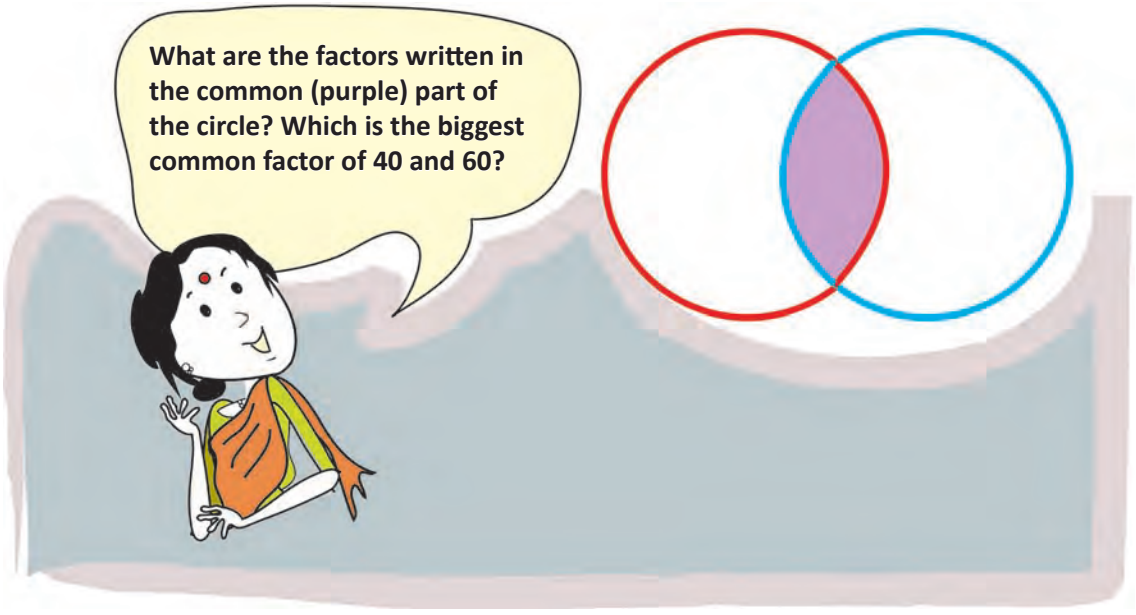
Common factors

Write the factors of 25 in the red circle and the factors of 35 in the blue circle



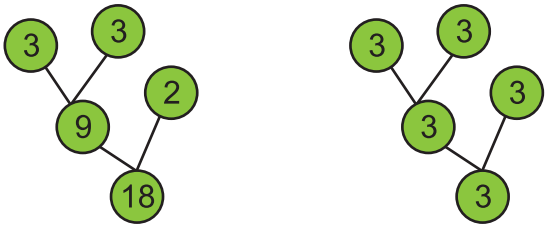
Which are the factors you have written in the common path (purple) of both circles? These are the common factors of 25 and 35.

Now write the factors of 40 in the red circle and 60 in the blue circle

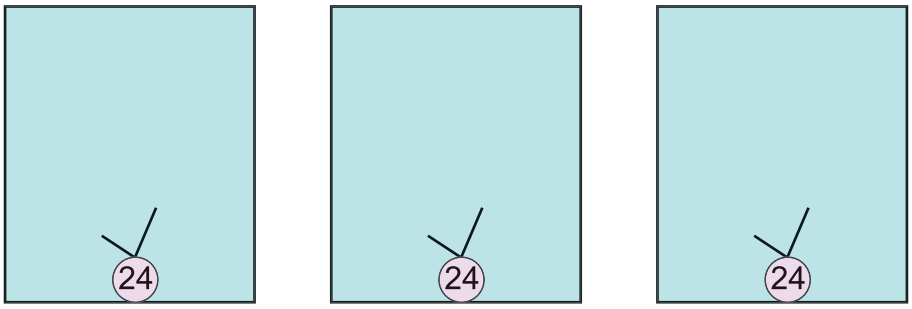


Factor Tree

Look at the factor tree. Now can you make another tree like this?

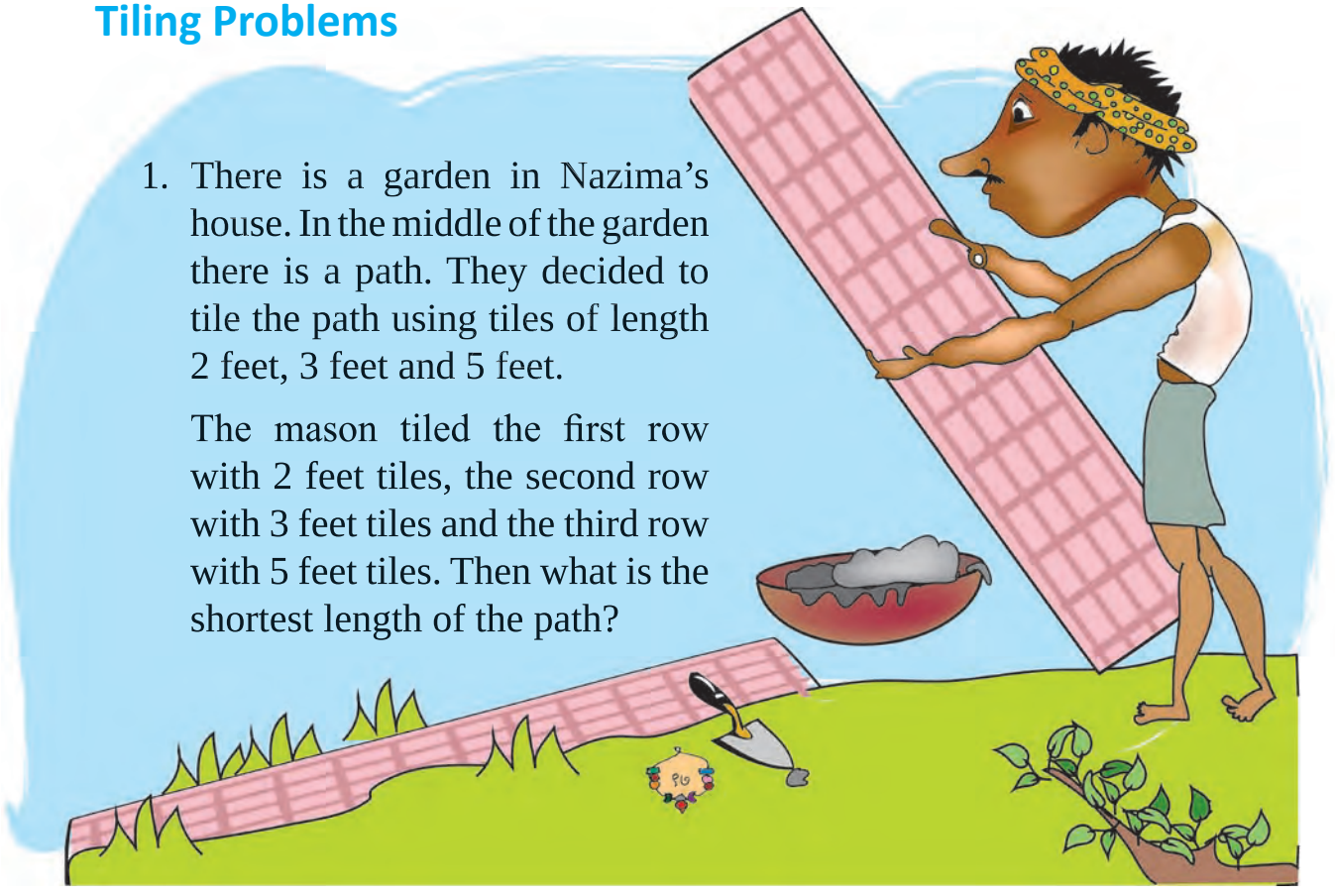


❖ In how many ways can you draw a factor tree for 24?
Draw three of them below?



Try drawing factors tree using another numbers also.

Tiling Problems

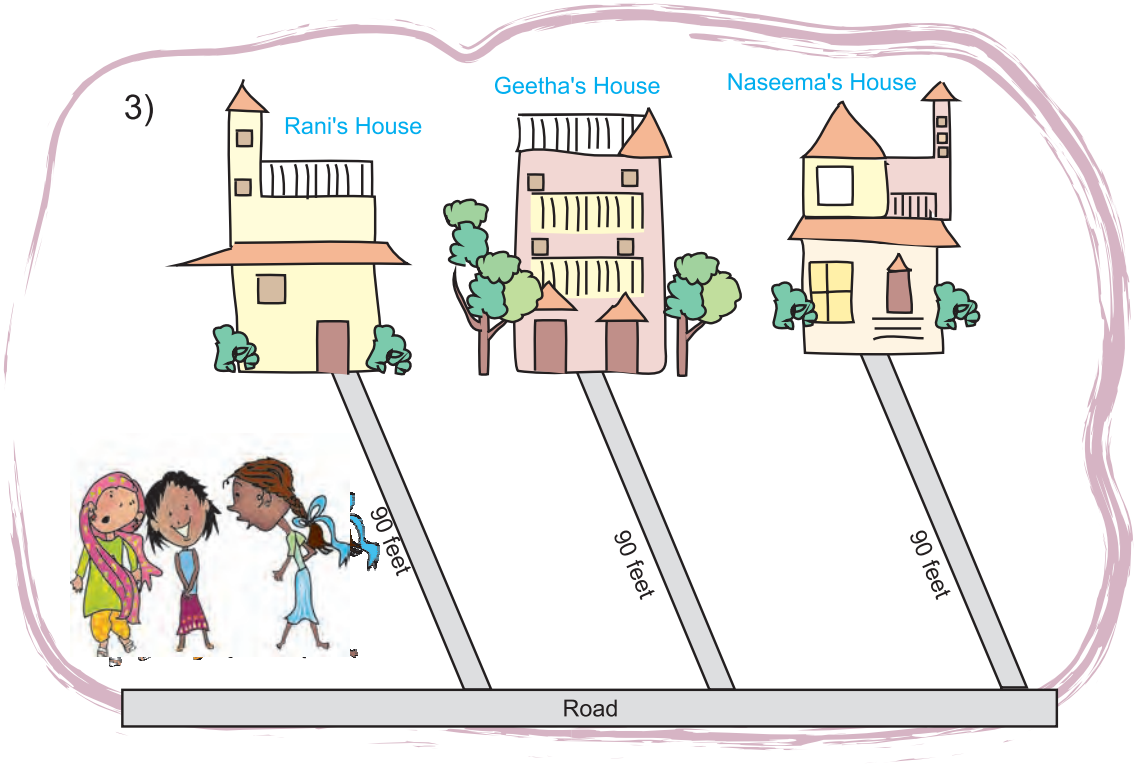


1. There is a garden in Nazima's house. In the middle of the garden there is a path. They decided to tile the path using tiles of length 2 feet, 3 feet and 5 feet.

   The mason tiled the first row with 2 feet tiles, the second row with 3 feet tiles and the third row with 5 feet tiles. Then what is the shortest length of the path?

2. Irfan has made a new house. He wants to lay tiles on the floor. The size of the room is 9 feet × 12 feet. In the market, there are three kinds of square tiles: 1 foot ×1 foot, 2 feet × 2 feet and 3 feet × 3 feet. Which size of tiles should he buy for his room, so that he can lay it without cutting?

3)



Asma, Sumaira, Rukaiya live near each other. The distance from their houses to the road is 90 feet. They decided to tile the path to the road .They all bought tiles of different designs and length. Asma bought the shortest tile, Sumaira bought the middle sized one and Rukaiya bought the longest one. If they could tile the path without cutting any of the tiles, what is the size of the tiles each has bought? Suggest 3 different solutions. Explain how you get this answer.

Now Let's Do These

Q.NO.1 Write the factors of:

(a) 16 (b) 28 (c) 54 (d) 80

Q.NO.2 Write the common factors of:

(a) 9 and 15 (b) 18 and 21 (c) 27 and 54

Q.NO.3 Write first five multiples of:

(a) 3 (b) 5 (c) 9 (d) 11

Q.NO.4 Write first two common multiples of:

(a) 5 and 6 (b) 4 and 3 (c) 4 and 8

(d) 3 and 5 (e) 3 and 7

Q.NO.5 Which of the following numbers are divisible:

(a) By 2 (b) By 4 (c) By 5

4940; 940; 25280; 562; 496; 3625

Q.NO.6 Find the H.C.F of:

(a) 12 and 16 (b) 45 and 36 (c) 28 and 40

(d) 40 and 75 (e) 49 and 36

Q.NO.7 Find the L.C.M of:

(a) 3, 4 (b) 6, 9 (c) 12, 18 (d) 9, 15 (e) 7, 8

ANSWERS

Q.NO.1 (a) 1, 2, 4, 8, 16

(b) 1, 2, 4, 7, 14, 28

(c) 1, 2, 3, 6, 9, 18, 27, 54

(d) 1, 2, 4, 8, 10, 16, 20, 40, 80.

Q.NO.2

(a) 1, 3 (b) 1, 3 (c) 1, 3, 9, 27.

Q.NO.3

(a) 3, 6, 9, 12, 25, _ _ _ _ _ _ _ _ _

(b) 5, 10, 15, 20, 25, _ _ _ _ _ _ _ _ _ _

(c) 9, 18, 27, 36, 45 _ _ _ _ _ _ _

(d) 11, 22, 33, 44, 55, _ _ _ _ _ _ _ _ _ _

Q.NO.4

(a) 30, 60 (b) 12, 24 (c) 8, 16 (d) 15, 30 (e) 21, 42

Q.NO.5

(a) 4940; 940, 25280, 562, 496

(b) 4940; 940, 25280, 496

(d) 4940; 940, 25280, 3625

Q.NO.6

(a) 4 (b) 9 (c) 4 (d) 5 (e) 1

Q.NO.7

(a) 12 (b) 18 (c) 36 (d) 45 (e) 56